Vector Solutions™

# ONLINE TRAINING & PERFORMANCE SOLUTIONS

## FOR A SKILLED WORKFORCE





INDUSTRIAL COURSE CATALOG

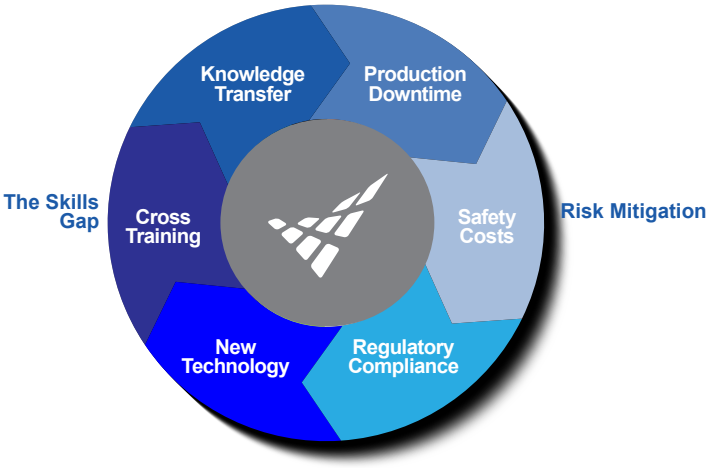
2021

## IMPROVE PERFORMANCE. STRENGTHEN COMPLIANCE. REDUCE RISK.

Vector Solutions leverages over 30 years of industrial training experience and a network of more than 200 subject matter experts to provide industrial facilities with engaging course content and technology-based training solutions that help assess and improve employee skills, performance and productivity. We offer over 3,000 cutting-edge training courses that are designed to keep your employees safe, transfer knowledge of fundamentals, and develop industry and job-specific skills that reduce downtime, maintenance costs and more.


Our training portfolio was built on one of the largest libraries of eLearning content in the world from trusted brands that have served the industry for over 25 years (NUS, Williams Learning, Tel-A-Train, PRIMEDIA and CiNet).

## Solving Workforce Challenges




### Skills Gap

Companies are facing a serious shortage of qualified industrial personnel, driven by a generational shift in the workforce, efficiency pressures, regulatory requirements and new technology. Integrated online training and cross-training can be used for onboarding and apprentice programs and can help ensure safe operation of new equipment, controls or plant additions.

### Risk Mitigation

Poor training exposes employees and companies to unplanned events resulting in injury, property loss, lost revenues, lower productivity and litigation. Help your workforce maintain the required level of knowledge to reduce error and downtime, minimize risk and ensure regulatory compliance.

## Instructional Design for knowledge transfer and behavior change

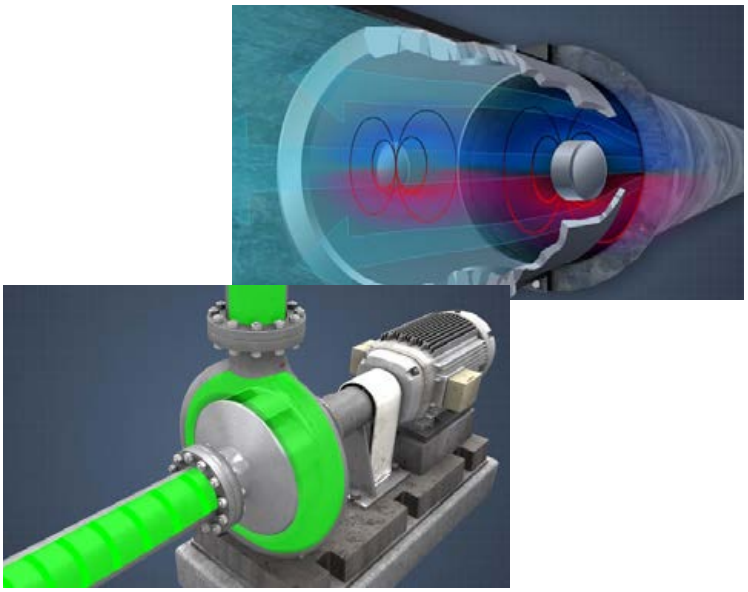
Our dedicated team of instructional designers work to create engaging, focused training that helps your employees actively participate to develop job skills, manage technology changes and maintain baseline knowledge and compliance.
Real-world video and 3D graphics put your students “on location” and improve retention on procedures, troubleshooting and hazardous event management.

### Courses Include:

- Real-world situations
- Interactive approach
- Comprehensive evaluations and progress tracking

### Highlights Include:

- Course introduction
- High-resolution 3D models and studio-quality motion graphics
- Stated learning objectives
- Learning aids - Including a main menu with a course outline and glossary of terms
- Interactive course modules – In-depth content, using any combination of demonstrative examples, integrated video, review activities, practice questions and rolling audio transcription
- Pre and post tests/exams - To validate learning and the level of achieved skill knowledge after training
- AICC/SCORM compatible



Vector courses are being re-released in a new next-generation content builder and player developed to provide learners with a consistent user experience and advanced features.

- **Consistent user experience** across all 3000+ new and existing Vector courses
- **Streamlined course launch** to get you learning quickly in a single browser window
- **Take your training on any device** with mobile responsive content that changes layout to optimize viewing on your device
- **View courses anywhere!** Bad internet connection? The quality of our variable bitrate videos automatically changes to limit buffering
- **Learn what you need, at the time of need** with interactive transcripts that allow you to jump to specific topics in a video
- **Train everyone** with all courses translated in 40+ languages using artificial intelligence and machine learning
- **Stop paying for translations** and just license libraries for each of your users, no matter what language they speak
- **Improved retention** with more advanced interactive question types

# Libraries Table of Contents

# POPULAR TRAINING TOPICS

## Core Industrial Skills

- Automatic Identification & Data Collection
- Blueprints and Diagrams
- Computer Basics
- Equipment and Tools
- Geometric Dimensioning and Tolerancing (GD&T)
- Industrial Materials
- Math Concepts
- Operator Responsibilities
- Rigging and Lifting
- Science Concepts
- Troubleshooting
- Welding

## Continuous Improvement

- Asset Condition Management
- Current Good Manufacturing Practices (cGMP)
- Lean Manufacturing & 5S
- Quality
- Reliability
- Total Productive Maintenance

## Corrugated Packaging

- Box Plant Basics

## Electrical Maintenance

- Basic Electrical Safety
- Basic Electrical Theory
- Basic Plant Science - Electrical
- Circuit Breakers
- Controls - Variable Speed Drives
- Diagrams
- Electric Motors
- Electrical Components
- Electrical Equipment
- Electrical Maintenance Training
- Electrical Protection
- Electrical Schematics
- Electrical Wiring
- Generators
- Test Equipment

## Facilities Management

- Asset Management
- BIM For Facility Managers
- Building Automation
- Carpentry/Hardware
- Custodial
- Electrical
- Emergency Power
- Energy Management
- Fire Systems/Sprinklers
- FM Fundamentals
- Groundskeeping
- Heating & Cooling
- HVAC
- Hydronic Systems
- Maintenance Management
- Motors
- Plumbing
- Preventive Maintenance
- Property Management
- Refrigeration
- Restaurant & Hospitality
- Water Treatment
- Work Order Management

## Health, Safety, Environment

- Bloodborne Pathogens
- Confined Space
- Construction
- Cranes & Rigging
- Electrical Safety
- Emergency Procedures
- Hazardous Materials
- Environmental
- Equipment Safety
- Ergonomics / Back Safety
- Fall Protection
- Fire
- First Aid
- Forklift Safety
- General Safety
- Hazard Communication
- HAZWOPER 8-Hour Annual Refresher *
- Health & Illnesses
- Lockout & Energy Control
- OSHA 10-Hour Construction*
- Personal Protective Equipment
- Process Safety Management
- Safety Management
- Welding Safety
- Working At Heights

## Instrumentation & Control

- Basic Instrumentation Diagrams
- Instrumentation
- Process Controls – Continuous Process
- Process Controls – Foundation
- Process Controls – Networks
- Process Controls – PLCs

## IT & Cybersecurity Professional

- Client Support
- Cloud
- Cybersecurity
- Database
- Development
- Network
- Server

## Laboratory Operations

- Chromatography
- Lab Technician Math
- Laboratory Analysis
- Laboratory Chemistry
- Laboratory Equipment
- Laboratory Operations

## Mechanical Maintenance

- Air Systems
- Basic Plant Science - Mechanical
- Bearings
- Compressors
- Conveyors
- Fans
- Heat Exchangers
- HVAC
- Hydraulics
- Industrial Refrigeration Systems
- Lubrication
- Mechanical Drives
- Pipes and Valves
- Pneumatics
- Pumps
- Seals
- Shaft Alignment
- Vehicle Maintenance
- Vibration Analysis

## Mining Safety (MSHA)

- Emergency Procedures
- Hazard Recognition & Avoidance
- Health & Safety Aspects Of Tasks
- Introduction To The Mine Environment
- Respirators & First Aid
- Rights & Reporting

## Other Manufacturing

- Converting
- Nonwovens

## Paper

- Broke Systems
- Chemical Additives
- Dry End Equipment
- Finishing
- Forming
- General Papermaking
- Headboxes
- Paper Machine Auxiliary Systems
- Paper Machine Dryers
- Paper Properties & Testing
- Stock Approach
- Stock Preparation
- Storage & Shipping
- Wet Pressing
- White Water & Filtrate Systems

## Power Generation & Utilities

- Coal Handling
- Combined Cycle
- Combustion Turbine
- Condensers
- Environmental Protection
- Furnaces
- Power Plant Operation
- Power Plant Protection
- Water Treatment
- Air Systems
- Power Boilers
- Turbines & Power Generation
- Water Systems

## Process Operations

- Chemistry
- Diagrams (IPO)
- Distillation
- On the Job Training
- Operator Responsibilities
- Plant Operations Basics
- Process Equipment and Operations
- Process Sampling
- Refining Technologies
- Refrigeration Systems (IPO)
- Statistical Process Control
- Storage Tanks

## Professional Development

- Communication
- Computer Skills
- Customer Service
- Diversity, Equity, and Inclusion
- Finance
- Health & Wellness
- Human Performance
- Leadership
- Management
- Policy and Compliance
- Sales

## Project Management

- Agile Project Management
- Construction Project Management
- PMBOK® Guide - Sixth Edition

## Pulping

- Bleaching
- Environmental
- Evaporators
- Fiber Supply
- Kraft Pulping
- Recaust
- Recovery
- Supplemental & Recycled Fiber

## Tissue

- Broke Systems
- Dry End Equipment
- Forming
- General Tissue Making
- Headboxes
- Stock Approach
- Stock Preparation
- Tissue Machine Auxiliary Systems
- Tissue Properties & Testing
- Wet Pressing
- White Water & Filtrate Systems
- Yankee Dryers

## Transmission & Distribution

- Overhead Line
- Rigging
- T&D Construction
- T&D Distribution
- T&D Equipment
- T&D Maintenance
- T&D Safety
- T&D Systems & Theory
- Underground Line / Cable

## Transportation Safety

- Driver Safety
- DOT Compliance Basics
- DOT Hazmat



*OSHA 10-hour General Industry, OSHA 30-hour Construction, HAZWOPER 24-hour and HAZWOPER 40-hour available for an additional fee.

# Process Operations

| Title | Description | Hours | Level |
|---|---|---|---|
| Above ground Storage Tanks, Part 1 | This course provides information about several types of above ground storage tanks, associated auxiliary equipment, and general safety concerns related to these tanks and the materials they contain. | 1 | Intermediate |
| Above ground Storage Tanks, Part 2 | Process facilities use above ground storage tanks to meet a variety of operating needs. Operators who work with these tanks need to know what their responsibilities are and how to carry them out safely. This course covers operator responsibilities in areas such as routine inspections, sampling, gauging, and material transfers. | 1 | Intermediate |
| Above ground Storage Tanks, Part 3 | Tank farm operators typically perform tasks such as gauging, sampling, and making material transfers on a daily basis. Other tasks are performed only periodically. One of these periodic tasks is taking a storage tank out of service and bringing it back in service. This course describes the basic steps for taking an above ground atmospheric tank out of service and putting it back in service. | 1 | Intermediate |
| Alkylation Operations | High-octane gasoline is one of the most important and profitable refinery products, and the main function of many refinery units is to make products for gasoline blending. In the final blend, one of the cleanest burning components, and the component with the highest octane, is often alkylate; the end product of an alkylation unit. | 1 | Intermediate |
| Auxiliary Vessels | "Process facilities contain a number of process units, and each process unit consists of one or more process systems. These process systems are made up of many different types of components, including various types of process vessels. A process operator must be familiar with the functions and features of all the different types of process vessels. This course focuses on a general group of vessels that can be referred to as auxiliary vessels." | 1 | Intermediate |
| Azeotropic, Extractive, and Vacuum Columns | "Distillation is an important process in many plants. It is used to separate mixtures into various components. In some plants, distillation may be the final step in processing a material so that it meets product specifications. The heart of a distillation process is a distillation column, or tower. Depending on the needs of the plant, a distillation process may include conventional, azeotropic, extractive, or vacuum columns." | 1 | Intermediate |
| Basic Chemical Plant Operations | Chemical plants are groups of systems that work together to process raw materials and produce finished products. Participants will learn about the types of systems, equipment, and instrumentation commonly found in chemical plants; and about their operating and safety procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Refinery Operations | "Refineries produce many different types of products for a variety of uses. Although no single refinery produces all types of products, many refineries produce more than one type of product. This training unit examines the functions of refinery systems and equipment and describes the role of operators in refinery operations." | 1 | Intermediate |
| Blending Operations | "Petroleum refinery products are blends of components from various process units plus additives. When the necessary blend components have been combined and any additives have been added, the result is a finished product, such as gasoline, jet fuel, or diesel fuel. In this course, you will explore some common products and the components used to blend them, different methods for blending products, and typical operator responsibilities throughout blending operations." | 1 | Intermediate |
| Centrifuge Operations | In this course, you will learn that centrifugation is a mechanical means of separating materials of different densities by spinning them. You will also learn about the types of centrifuges, their auxiliary equipment, and their basic operating procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Chemistry: Basic Principles, Part 1 | Operators who work in process plants need to have a good understanding of the basic principles of chemistry, since processes often involve changes in the structure and composition of matter. This course will provide an introduction to chemistry, definitions of key terms, a review of compounds and mixtures, and an examination of solutions and how they are different from other mixtures. | 1 | Intermediate |
| Chemistry: Basic Principles, Part 2 | This course is designed to familiarize you with basic concepts associated with chemical reactions, material balancing, and organic chemistry. After completing this course, you should be able to use a chemical equation to explain what occurs during a chemical reaction, and explain how combustion reactions, replacement reactions, and neutralization reactions occur. You should also be able to explain what material balancing is and describe the basic steps involved in balancing the materials represented in a simple equation. In addition, you should be able to explain what organic chemistry is and how some organic chemicals are named. | 1 | Intermediate |
| Chemistry: Material Balancing | This course is designed to familiarize participants with basic concepts associated with using balanced chemical equations to calculate the amounts of reactants and products in process reactions. After completing this course, participants should be able to explain what material balancing is, verify that a chemical equation is balanced, and use a balanced equation to calculate the amounts of reactants and products in a reaction when the weight of one reactant is given. They should also be able to identify two basic factors that can limit the production of a process system, perform material balancing for a process system when reactant supply is the limiting factor, and perform material balancing for a system in which a specific amount of product is to be produced. | 2 | Intermediate |
| Chemistry: Reaction Rates | This course is designed to familiarize participants with basic concepts associated with the rates at which chemical reactions occur. After completing this course, participants should be able to describe two factors that determine the rates of reactions and describe the effects of temperature, pressure, concentration, and surface area on reaction rates. They should also be able to describe how catalysts affect reaction rates and how equilibrium reactions can be affected by temperature and pressure. | 2 | Intermediate |
| Crude Distillation Operations | "Operators must properly monitor and control the distillation process in the crude unit so that the products leaving the unit meet process specifications. This course provides an overview of the operation of a crude distillation unit. The steps that crude oil goes through in the crude unit, process variables, and conditions that affect unit operation will also be examined. This course will also consider problems that might arise in the crude distillation unit and how to correct them." | 1 | Intermediate |
| Diagrams: Blueprints | This course is designed to familiarize participants with the basic features of construction blueprints. After completing this course, participants should be able to describe various types of blueprints, identify lines, symbols, and abbreviations that are commonly found in blueprints, and explain how to properly care for blueprints. | 2 | Intermediate |
| Distillation: Basic Principles | "Many of the products we use every day are produced from raw materials. Distillation is a process often used to turn raw materials into finished products. Because distillation is involved in the production of so many products, it's important plant operators understand how it works. In this interactive, online course we will begin by discussing the basic principles of distillation. We will define terms related to states of matter, heat and temperature, distillation, and pressure. We will also discuss some basic distillation processes, including separation of liquid mixtures, batch processes, and continuous distillation." | 0.5 | Intermediate |
| Distillation: Control Systems | "What are the goals of a distillation system? Simply put, they are to maintain an optimum production rate and to meet specifications that are set for its products. In this interactive, online course, you will examine various factors that must be controlled if a distillation system is to meet its goals, and you will see how control systems provide the control that's needed. During operation, different balances must be maintained and you must understand process temperatures, how they can affect the distillation process, and how they can be controlled. The final component is product composition; you will discover how the compositions of a distillation system's products are controlled." | 0.5 | Intermediate |

# Process Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Distillation: Operating Problems | How good are you at troubleshooting problems with distillation systems? This interactive online course is designed to familiarize participants with some of the problems that can occur during the operation of distillation systems. After completing this course, participants should be able to describe problems that can occur when the feed rate to a distillation column is incorrect, problems that can occur when the amount of reflux going back to the column is incorrect, and problems that can occur when the reboiler in a distillation system is operated improperly. | 0.5 | Intermediate |
| Distillation: System Startup and Shutdown | Getting the desired products from any distillation system depends on being able to operate the system properly. This interactive online course will teach you the steps involved in preparing and starting up a distillation system. You will also learn the procedures for a short-term shutdown, long-term shutdown, and emergency shutdown of a continuous vacuum distillation system. | 0.5 | Intermediate |
| Distillation: Towers, Reboilers, and Condensers | How familiar are you with the process of distillation or the components of distillation towers? This interactive online course is designed to familiarize participants with the basic principles of operation of distillation towers, reboilers, and condensers. After completing the course, participants should be able to describe the difference between a binary tower and a multidraw tower and explain how a multidraw tower operates. They should also be able to explain why the physical dimensions of a tower can vary, and they should be able to explain why vacuum distillation and azeotropic distillation are used. In addition, participants should be able to explain how various types of reboilers and condensers are used in distillation systems. | 0.5 | Intermediate |
| Dryers | Many raw materials and finished products in chemical plants are dried at some stage of processing. This training module will cover the basic principles of drying and how drying is accomplished in different kinds of dryers commonly used in chemical plants. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Drying Operations | The purpose of this course is to provide participants with a basic understanding of the operation of drum, paddle-type, and freeze-drying operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Environmental Awareness | Operators can play an important role in controlling the amounts of impurities that are released to the environment. It is, therefore, important for operators to have an understanding of current environmental regulations and preventive practices. This training module focuses on these regulations and the operator's role in controlling industrial pollution. | 1 | Intermediate |
| Evaporation Unit Operations | The purpose of this course is to introduce participants to the principles of evaporation and the purpose of evaporation in process systems. The focus of the course is on the advantages and applications of various types of evaporators used in industry and on standard operator duties. This course consists of a streaming video course. It may also contain links to various Internet sites, and course reference material in a PDF format. | 1 | Intermediate |
| Filtration and Screening Unit Operations | This course focuses on the separation of mixtures by means of filtration and screening. The operation of devices used to accomplish filtration and screening are covered along with the operator's role and screening unit operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Flaring, Venting & Purging - OTFVP | Industrial process operations produce many different types of useful products. In many cases, however, these operations also produce waste materials that must either be recovered for reuse or safely discarded. Although waste materials may be solids, liquids, or gases, this course focuses on waste gases. Specific attention is directed to how waste gases are removed from process systems and safely disposed of. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fluid Catalytic Cracking Operations | "A typical petroleum refinery includes many different units that are associated with a variety of processes. One of the important units in a refinery is a fluid catalytic cracking unit, or ""cat cracker."" This course describes the basics of fluid catalytic cracking operations, with emphasis on the equipment that is used, the process variables that are involved, and operator responsibilities." | 1 | Intermediate |
| Fundamentals of Process Solubility | This course examines the basic concepts that relate to the processing of certain kinds of mixtures. Industrial applications of these concepts are also presented. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| General Troubleshooting Strategies | Effective troubleshooting uses various techniques to diagnose and fix problems. A series of logical steps will help to speed up the troubleshooting process. Rarely will simply guessing potential solutions for a problem work (or it may provide only a quick fix). There are five steps in the troubleshooting process. This course will discuss these five steps in detail. | 0.25 | Intermediate |
| Heat Exchangers: Cooling Towers | "In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons, it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower." | 0.5 | Intermediate |
| Heat Exchangers: Operation of Shell and Tube Types | "Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger." | 0.5 | Intermediate |
| Hydrotreating and Catalytic Reforming, Part 1 | "Refineries develop and improve products such as high-octane, low-knock gasoline; aviation fuel; and petrochemical feedstocks. The major role of hydrotreating and catalytic reforming units is to work together to produce these fuels and petrochemical feedstocks. This course examines the reactions and equipment that are involved in hydrotreating and catalytic reforming and identifies the process variables that have to be monitored and controlled." | 1 | Intermediate |
| ISO 9000 | The European Community (EC) is a single trading bloc including many countries in Europe. The International Organization for Standardization (ISO) is an organization working with the EC and other countries to develop worldwide standards for products and services. The series of quality system standards and guidelines is commonly called ISO 9000. The focus of this course will provide examples showing how process plant operations can be modified to comply with ISO 9000. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Material Handling of Bulk Liquids | Every day large quantities of liquid products are transported in and out of industrial facilities. These products are generally carried by tank trucks, tank cars, or barges. This course discusses how loading, unloading, and other transfers of bulk liquids must always be done safely and efficiently. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Process Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| On-the-Job-Training: Implementation and Evaluation | This course is designed to familiarize participants with basic concepts associated with on-the-job (OJT) training of plant operators. After completing this course, participants should be able to identify qualities that an effective OJT instructor should have and describe considerations associated with scheduling, planning for, and conducting on-the-job training. They should also be able to describe how the participant, the instructor, and the overall OJT program can be evaluated. | 2 | Intermediate |
| On-the-Job-Training: Preparation | This course is designed to familiarize participants with basic concepts associated with on-the-job training (OJT) of plant operators. After completing this course, participants should be able to compare OJT and classroom training and describe the basic steps in a formalized OJT program. They should also be able to explain how to determine specific training needs for a participant, and they should be able to describe training materials that are commonly used for OJT. | 2 | Intermediate |
| Operations: Basic Principles | In this course, you will learn how a plant responds to load demand changes and what the basic responsibilities of an operator are during a load change. You will describe the basic function of bearings, identify sliding surface bearings and roller contact bearings, and know some of the operator responsibilities for checking bearings and maintaining lubrication. | 1 | Intermediate |
| Operator Responsibilities: Advanced Operator Responsibilities | This training unit is designed as a refresher for experienced operators and a look at the operator's changing role. The specific areas covered include operator responsibilities for safety, data collection, production, and interpersonal communications. | 1 | Intermediate |
| Operator Responsibilities: Basic Operator Responsibilities | Modern industrial facilities include complex groups of systems serving a multitude of functions. These systems, which consist of equipment, piping runs, and electrical cables, all work together to process raw materials into final products that can be supplied to customers. Many groups of people are involved in the operation of an industrial facility. This course focuses on the basic responsibilities of the people who operate process systems. | 1 | Intermediate |
| Operator Responsibilities: Communication | This course is designed to familiarize participants with basic operator responsibilities associated with interpersonal relationships and data collection and use. After completing this course, participants should be able to describe the components of a basic communication model and describe an operator's responsibilities for communicating with other plant personnel, customers, and members of the surrounding community. They should also be able to describe operator responsibilities associated with collecting and using written data and with participating in effective shift changes. | 2 | Intermediate |
| Operator Responsibilities: Introduction | How much do you know about how plants are operated? In this online interactive course we will cover how in a plant, many different systems work together to turn raw materials into finished products. Many different people work together to make sure the systems work the way they should. Some of these people are the plant operators who are responsible for running the process systems. | 0.5 | Intermediate |
| Operator Responsibilities: Plant Production and Safety | The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with. | 0.5 | Intermediate |
| Operator Responsibilities: Trends, Maintenance, and Emergencies | This course is designed to familiarize participants with basic operator responsibilities associated with trend analysis, equipment maintenance, and emergency situations. After completing this course, participants should be able to describe ways to detect and analyze trends, explain how work orders are used, and describe how to perform some minor maintenance tasks. They should also be able to explain how operators can prepare for emergency situations and describe operator responsibilities during emergencies. | 2 | Intermediate |
| Plant Science: Process Dynamics and Measurement | This course is designed to familiarize participants with the characteristics of dynamic process operation and with devices that are commonly used to measure process variables. After completing this course, participants should be able to explain what resistance and capacitance are in process systems and to describe factors that affect the response of a process system to operating changes and process disturbances. Participants should also be able to describe devices that can be used to measure pressure, flow, level, and temperature. | 0.5 | Intermediate |
| Portable and Emergency Equipment | This training program focuses on common types of portable and emergency equipment that are found in industrial facilities. Some types of portable equipment are used to periodically analyze conditions in a process or inside process equipment. Other types of portable equipment, such as pumps, have specialized roles that are determined by plant procedures and policies. Emergency equipment, such as respirators and fire fighting equipment, is used strictly during emergencies. | 1 | Intermediate |
| Process Chemistry | Process chemistry is chemistry that applies to process systems. An understanding of process chemistry can help process industry personnel understand the chemical reactions that occur in process systems. This course examines how the principles of material balancing, reaction rates, and equilibrium reactions apply to the process industry. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Process Reactor Fundamentals - RCPRF | "When you're working around reactors, your primary responsibility is to make sure that the chemical reactions occur safely and efficiently. In a very real sense, you're responsible for controlling what goes on inside the reactors. In order to do that, you need to know some basic principles that govern reactor operations. Then, you can apply these principles to any reactor in your plant. This interactive online course focuses on the fundamentals of reactors used in process plants. Specific areas covered include the basic components of a reactor, reactor operation, types of reactors, auxiliary equipment associated with reactors, and the operator's role in reactor operations." | 1 | Intermediate |
| Process Sampling: Obtaining samples | Sampling is an important task performed to determine product quality. Operators routinely sample process fluids and solids at various stages of the production process. This activity explains why samples are taken in process systems, describes information that is typically included on a sample label, and describes how to obtain contaminant-free representative samples of process liquids, solids, and process gases. | 1 | Intermediate |
| Process Sampling: Testing Samples | This course is designed to familiarize participants with basic procedures for performing tests on samples of process materials and products. After completing the course, participants should be able to describe how to perform a pH test, a percent solids test, a specific gravity test, and a titration. They should also be able to describe the operation of a gas chromatograph and how a gas chromatograph is used to perform tests on complex gas mixtures or solutions. | 2 | Intermediate |
| Pumping Stations - Pumps, Motors and Electrical Systems | "Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations." | 2 | Fundamental |
| Refining Basics | A refinery uses a number of processing units to transform crude oil into a wide variety of products that are marketed to customers. This course examines the basics of crude oil and how it is processed in a refinery. | 1 | Intermediate |

# Process Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Refrigeration - Compressors, Valves and Piping | The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Properties | Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Selection | Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems. | 0.25 | Intermediate |
| Refrigeration - System Components | There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes. | 0.25 | Intermediate |
| Refrigeration - System Troubleshooting | Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance. | 0.25 | Intermediate |
| Refrigeration - Vapor-Compression Cycle | The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage. | 0.25 | Intermediate |
| Statistical Process Control, Part 1 | "An important goal of every process plant is to produce a quality product at the lowest possible cost. In this course, you will explore how statistical process control, or SPC, can be used to help maintain consistent quality and reduce costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Statistical Process Control: Basic Control Charts | This course is designed to familiarize participants with some of the basic control charts used in statistical process control (SPC). After completing this course, participants should be able to describe the characteristics of X-bar charts, R charts, moving X-bar charts, moving R charts and individual X charts. They should also be able to explain what each chart represents and how to plot values on each chart. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Statistical Process Control: Introduction | This course is designed to familiarize participants with the basic principles of statistical process control (SPC). After completing this course, participants should be able to explain what SPC is and how SPC can be applied to a process. They should also be able to describe the basic elements of an SPC control chart and relate an SPC control chart to an X-Y graph and to a normal distribution curve. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Statistical Process Control: Process Variations | This course is designed to familiarize participants with some basic techniques for using statistical process control (SPC) to recognize and respond to variations in plant processes. After completing this course, participants should be able to describe how plotted values on control charts can be interpreted, describe how an operator can use SPC to recognize and respond to out-of-control conditions and process instability, describe basic considerations for using SPC with a computer, and explain how to use various types of attribute charts. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Steam Turbines | Equipment such as pumps, compressors, and fans is essential to the operation of an industrial facility. Before this equipment can operate, however, it must be supplied with power. Although electric motors are among the most common means of supplying the power necessary to drive equipment, other drivers, such as internal combustion engines, gas turbines, and steam turbines, are also used. This program focuses on steam turbines. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Treating and Sulfur Recovery Operations | "Crude oil contains valuable and desirable hydrocarbon molecules. In addition, however, raw crude and distilled fractions contain impurities. The type and amount of impurities in raw crude and distilled fractions may vary, depending on several factors, including the origins of the crude and the boiling ranges of the fractions. This course covers some treating processes that are used to remove or convert sulfur compounds." | 1 | Intermediate |
| Water Industry Hydraulics | This interactive online course covers the concepts, calculations, and operational uses of hydraulics in the water industry, and will examine the physics behind certain operations and processes within the water treatment industry. Subjects included in the course are density and specific gravity, pressure and force, head, head loss, pumping rates and pump heads, flow rates, and flow measuring devices. This course will examine each of these concepts in detail and explain their application. | 1 | Intermediate |
| Water Industry Maintenance on Pumps, Motors, and Circuits | "In your career as a water operator, you will work with many different types of pumps, motors, and circuitry. These components provide the beating heart of the water system, serving as the force that moves water through the plant for processing. This interactive online course will teach water operators how to properly work with and maintain a wide variety of pumps, motors, and circuits. This course will also identify how methods of corrosion control, proper pump safety, and the best techniques for moving pumps." | 1 | Intermediate |

# Laboratory Operations

| Title | Description | Hours | Level |
|---|---|---|---|
| Aliphatic Chemistry | This course offers a condensed and simplified lesson on the characteristics and chemical behavior of the aliphatic branch of organic chemistry. The physical properties, molecular structure, and typical reactions of alkanes, alkenes, and alkynes are discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Analytical Procedures | This course describes the major tasks associated with performing analytical procedures in a chemical lab. It discusses qualitative and quantitative analyses, accuracy and precision, validation of procedures, and the use of standards. It describes the following basic steps for performing an analysis: handling samples; choosing and performing appropriate analytical procedures; and collecting and reporting data, including calculating percent recovery and relative percent difference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Aromatic Chemistry | This course is designed to introduce participants to aromatic compounds and the reactions associated with them. It describes the structures of benzene and benzene-derived compounds and explains how aromatic compounds are named. It also covers various types of benzene reactions and identifies typical compounds produced through benzene reactions. In addition, it covers aryl halides, phenols, ethers, aldehydes, ketones, and arenes. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Atomic Absorption | In this course, participants are introduced to atomic absorption analysis. The course explains the basic principles of atomic absorption and introduces equipment used to conduct atomic absorption measurements for both conventional, or flame, and graphite furnace atomic absorption. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Lab Operations | This course provides laboratory participants with basic information about the responsibilities and duties of a lab technician. After completing this course, participants should be able to describe, in general terms, what lab technicians do and how they perform various functions. The course also covers safety hazards related to lab work and explains how lab technicians are protected from them. In addition, the course introduces the use of quality control in laboratories and shows how quality control affects lab operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Gas Chromatography | This course explains how sample components can be separated by gas chromatography. It discusses the basic principles of the gas chromatography process and describes the major parts of a typical gas chromatography system, including an auto sampler, packed columns, capillary columns, a flame ionization detector (FID), and a data system. It describes the major steps of a chromatographic analysis, including sample preparation and injection, sample separation, component detection, and data processing. It also discusses the basic features of a typical gas chromatogram and describes how the information presented on a gas chromatogram is used for qualitative and quantitative analysis. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Glassware | This course introduces participants to some of the basic methods of handling and using glassware in a laboratory environment. The course identifies and describes the functions of several commonly used types of laboratory glassware. Also covered are the basic procedures for using glassware such as pipettes and burettes. In addition, general safety procedures related to handling glassware are described, and efficient methods of cleaning and storing glassware are shown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hardware | This course describes some of the equipment typically used in the lab, with emphasis on the safe operation of the equipment. The course describes lab equipment used for mixing and for grinding. The setup and lighting of a typical gas burner and how to use the burner to heat glassware are covered. Heating equipment that does not require an open flame and safety practices associated with heating materials are discussed. Several types of pumps and their safe operation are described. The parts and operation of a gas cylinder are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Infrared Analysis | The purpose of this course is to present a fundamental treatment of how to perform infrared (IR) analysis. The course starts by describing the basic concepts underlying IR, and then describes several methods used to prepare samples for analysis. After the major components of a typical IR spectrometer are identified, a demonstration of how to perform IR analysis is presented. The course concludes by introducing the graph used to show the results of an analysis, describing the characteristics of a typical IR spectrum, and identifying different ways IR results can be used in chemical plants. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Inorganic Chemistry | Inorganic Chemistry is designed to introduce participants to some of the terms and principles associated with basic chemistry. The basic structure of an atom is described, and the ways atoms combine with each other are explained. In addition, the periodic table is introduced and used to determine mass relationships described by chemical reactions. This course also covers how chemical reactions can be affected by various conditions, and special attention is paid to equilibrium reactions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Ion Concentration Analysis | This course introduces participants to the basic principles associated with ions as well as laboratory procedures that depend on the presence of ions. The course includes an explanation of how ions are formed and how they can be represented. In addition, the course describes how a pH meter can be used to measure the acidity or alkalinity of a liquid and how a conductance meter can be used to measure a liquid's ability to conduct current. The course also includes an explanation of the process of ion exchange chromatography. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lab Technician Math, Part 1 | This course demonstrates some math fundamentals necessary to perform various calculations in the lab. The metric (SI) measurement system is described and practical instruction is given on the conversion to English units and vice versa. Exponential numbers are explained, and participants are shown how to perform arithmetic operations with them. Also, the rules for significant figures and rounding are described. Converting between fractions, decimals, and percents is demonstrated; and finally, ratios and proportions are explained and examples of their practical use are shown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Laboratory Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lab Technician Math, Part 2 | This course describes how to perform calculations that are involved in preparing some types of solutions commonly used in labs. Specifically, it discusses calculations required for preparing dilutions, mass percent solutions, volume percent solutions, molar solutions, and normal solutions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lab Technician Math, Part 3 | This course introduces basic concepts of statistics and statistical analysis that can be applied to lab work. It defines terms associated with basic statistical concepts and explains how statistical process control (SPC) can be used in labs. It explains how control charts (focusing on an individual X chart) can be used to monitor the performance of analytical systems and interpret the results of analyses. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Mass Spectrometry | This course describes the process of mass spectrometry and the analytical instrument that is used to perform this process. The focus is on a typical bench top gas mass/mass spectrometry (GC/MS) system. The system featured in this course includes a gas chromatograph with a capillary column, directly coupled to a mass spectrometer. The course explains the basic principles of mass spectral analysis, identifies the major parts of a typical GC/MS system, and describes the major steps of sample introduction, ionization (by electron-impact ionization), fragmentation, separation by mass (in a quadruple mass analyzer), detection of ions (by an electron multiplier), and data processing. The basic features of a typical mass spectrum and a typical total ion chromatogram are also described, and the use of the data system for controlling the GC/MS and for data processing, including performing library searches of mass spectra, is discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Optical Analysis | In this course, the basic principles and operation of optical analytical instruments are discussed. This course looks at the basic principles, operation, and use of colorimeters, polarimeters, turbidimeters, nephelometers, and refractometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Personal Safety for Lab Technicians | This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Quality Control and Assurance | This course discusses how quality control and quality assurance practices apply to virtually every task that a lab technician performs. It describes the major goals and requirements associated with quality control and quality assurance, and explains how quality control and quality assurance concerns apply to routine lab tasks, to sample handling and testing, and to documentation. It also describes audit requirements for maintaining lab quality control and assurance. (Note: Quality Control and Assurance is appropriate for most industrial labs. For labs that fall under federal regulations 21 CFR 210 and 211, which refer to drug products and bulk pharmaceutical chemicals, Current Good Manufacturing Practices may be the preferred course of instruction.)Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Sample Preparation | In Sample Preparation, participants are introduced to the ways samples are prepared before they are analyzed in a lab. The course begins by explaining the importance of sample preparation and of maintaining sample integrity. The course then focuses on the major tasks associated with sample preparation and describes various common sample preparation procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Separation and Isolation of Materials | Equipment and safe procedures for separating and isolating materials using various methods are covered in this course. The basic principles and operation of a simple distillation apparatus are discussed, and gravity filtration and vacuum filtration setups and procedures are demonstrated. The course also explains the basics of extraction and describes extraction equipment and procedures. Finally, the course explains and describes a crystallization procedure. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| The Safe Lab Environment | This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| UV-Visible Spectroscopy | This course is designed to introduce participants to the analytical technique of UV-visible spectroscopy. The course covers the properties of the electromagnetic spectrum and the basic principles of UV-visible spectroscopy as well as terms used to describe this analytical technique. The course also introduces the equipment used to perform UV-Visible spectroscopy and covers the way typical UV-visible spectroscopy analysis can be performed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Weighing and Measuring Techniques | This course presents material related to weighing and measuring techniques commonly performed in laboratories. It begins by describing the operation of two types of instruments used to make mass measurements: mechanical and electronic balances. Then the techniques of reading various volumetric measuring devices (including graduated cylinders, pipettes, and burettes) are demonstrated. Next, the course presents demonstrations of how to make linear measurements using calipers and a measuring microscope. The course concludes with a segment on temperature measurements that describes the techniques used to read alcohol and mercury thermometers and to check the accuracy of liquid-filled thermometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Azeotropic, Extractive, and Vacuum Columns | "Distillation is an important process in many plants. It is used to separate mixtures into various components. In some plants, distillation may be the final step in processing a material so that it meets product specifications. The heart of a distillation process is a distillation column, or tower. Depending on the needs of the plant, a distillation process may include conventional, azeotropic, extractive, or vacuum columns." | 1 | Intermediate |

# Laboratory Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lab Safety: Electrical Safety in the Laboratory | This interactive course on Electrical Safety in the Laboratory emphasizes the need for safety when using electricity, and discusses how to reduce the potential for accidents involving electrical shock, fire and explosions. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Flammables & Explosives in the Laboratory | This interactive course on Flammables and Explosives in the Laboratory discusses the nature of flammable and explosive materials, as well as hazards associated with their use. It also reviews the proper handling procedures and personal protective equipment that should be used when working with these substances. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: GHS Safety Data Sheets in the Laboratory | This interactive course on GHS Safety Data Sheets in the Laboratory reviews the composition of GHS Safety Data Sheets, the information that's contained in each section and how SDS's are different from Material Safety Data Sheets. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Handling Compressed Gas Cylinders in the Laboratory | This interactive course on Handling Compressed Gas Cylinders in the Laboratory examines how gas cylinders work, the hazards that are associated with them and the need for caution when using or storing a cylinder. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Laboratory Ergonomics | This interactive course on Laboratory Ergonomics discusses the need to set up work areas correctly, as well as how to minimize the strain of using laboratory equipment, tools and instruments. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Laboratory Hoods | MARCOM's interactive course on Laboratory Hoods emphasizes how to properly use laboratory hoods and how to test them to ensure correct functioning... as well as discusses how hoods can protect an experiment, the facility, and most importantly, the employee. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Orientation to Laboratory Safety | This interactive course on Orientation to Laboratory Safety shows both new employees and seasoned veterans the importance of safety in the laboratory... as well as reviews the OSHA regulations and good safety practices that apply to the laboratory environment. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: OSHA Formaldehyde Standard | This interactive course on The OSHA Formaldehyde Standard provides training that is required by this standard, and focuses on the rules and procedures that the standard establishes for working with this potentially dangerous chemical. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Planning for Laboratory Emergencies | This interactive course on Planning for Laboratory Emergencies discusses how to minimize damage and prevent injuries if an emergency should occur. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Preventing Contamination in the Laboratory | This interactive course on Preventing Contamination in the Laboratory emphasizes the need to recognize situations that could lead to contamination, and discusses what can be done to prevent contamination from occurring. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Safe Handling of Laboratory Glassware | This interactive course on Safe Handling of Laboratory Glassware discusses the nature of various types of glassware, and the problems it can cause... as well as the need for employees to use and maintain laboratory glassware safely. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Safety Showers & Eye Washes in the Laboratory | This interactive course on Safety Showers and Eye Washes in the Laboratory reviews the correct ways to use this equipment, and emphasizes the need for quick action after a chemical splash or spill. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Distillation: Basic Principles | "Many of the products we use every day are produced from raw materials. Distillation is a process often used to turn raw materials into finished products. Because distillation is involved in the production of so many products, it's important plant operators understand how it works. In this interactive, online course we will begin by discussing the basic principles of distillation. We will define terms related to states of matter, heat and temperature, distillation, and pressure. We will also discuss some basic distillation processes, including separation of liquid mixtures, batch processes, and continuous distillation." | 0.5 | Intermediate |
| Distillation: Control Systems | "What are the goals of a distillation system? Simply put, they are to maintain an optimum production rate and to meet specifications that are set for its products. In this interactive, online course, you will examine various factors that must be controlled if a distillation system is to meet its goals, and you will see how control systems provide the control that's needed. During operation, different balances must be maintained and you must understand process temperatures, how they can affect the distillation process, and how they can be controlled. The final component is product composition; you will discover how the compositions of a distillation system's products are controlled." | 0.5 | Intermediate |
| Distillation: Operating Problems | How good are you at troubleshooting problems with distillation systems? This interactive online course is designed to familiarize participants with some of the problems that can occur during the operation of distillation systems. After completing this course, participants should be able to describe problems that can occur when the feed rate to a distillation column is incorrect, problems that can occur when the amount of reflux going back to the column is incorrect, and problems that can occur when the reboiler in a distillation system is operated improperly. | 0.5 | Intermediate |

| Laboratory Operations (Continued) | | | |
|---|---|---|---|
| **Title** | **Description** | **Hours** | **Level** |
| Distillation: System Startup and Shutdown | Getting the desired products from any distillation system depends on being able to operate the system properly. This interactive online course will teach you the steps involved in preparing and starting up a distillation system. You will also learn the procedures for a short-term shutdown, long-term shutdown, and emergency shutdown of a continuous vacuum distillation system. | 0.5 | Intermediate |
| Distillation: Towers, Reboilers, and Condensers | How familiar are you with the process of distillation or the components of distillation towers? This interactive online course is designed to familiarize participants with the basic principles of operation of distillation towers, reboilers, and condensers. After completing the course, participants should be able to describe the difference between a binary tower and a multidraw tower and explain how a multidraw tower operates. They should also be able to explain why the physical dimensions of a tower can vary, and they should be able to explain why vacuum distillation and azeotropic distillation are used. In addition, participants should be able to explain how various types of reboilers and condensers are used in distillation systems. | 0.5 | Intermediate |
| cGMP Essentials: Intro to cGMP | "As a new pharmaceutical employee, it is important to understand the rules and regulations that govern the pharmaceutical business. Introduction to cGMP will educate all employees on the history of the US FDA, why we have good manufacturing practices and why they are important not only to our business, but for the health and safety of our consumers. In this online interactive course, we will discuss current good manufacturing practices, how they came about, and why they are important to the day-to-day quality standards set within our organizations." | 0.17 | Fundamental |
| cGMP Essentials: Change Control | In this online interactive course, we'll be looking at change control. We're going to discuss why we need change control and what that process looks like. You'll see what areas are typically governed by change control. We're also going to look at the considerations you should have regarding how the change will impact the system, how you're going to implement the change, and follow the proper notification procedure. | 0.17 | Fundamental |
| cGMP Essentials: Data Integrity | "As more and more data is being generated in the pharmaceutical world, the integrity of that data must be protected. In this data integrity course, employees will understand what data is, what the regulatory expectations are for data, the controls used, good documentation practices and what kinds of data integrity issues exist." | 0.17 | Fundamental |
| cGMP Essentials: Deviation and CAPA | "Errors and issues happen. When they do, our employees need to know how to investigate these occurrences and how to prevent their recurrence. Deviation and CAPA walks employees through steps to take when performing a root cause analysis and the CAPA process." | 0.17 | Fundamental |
| cGMP Essentials: Good Personal Hygiene | "One of the easiest cGMP compliance practices is good personal hygiene. In this course, employees will learn why good personal hygiene is important and measures they can take to protect themselves, fellow employees and our customers." | 0.17 | Fundamental |

# Continuous Improvement

| Title | Description | Hours | Level |
|---|---|---|---|
| 5S Methodology | Is your workplace a mess? Tired of spending hours searching for the right tool? This course will teach you about the 5S methodology, which focuses on organizing and standardizing the workplace to increase efficiency and effectiveness. Its five principles, sorting, straightening, sweeping, standardizing and sustaining, will make you and your co-workers better prepared to accomplish all of your tasks while being safer and more efficient in the process. | 0.25 | Intermediate |
| Applied Vibration Analysis: Analyzing Bearing Vibrations | In this interactive online course you will apply the analysis process to diagnose developing bearing problems. We almost have to start with bearings for one very simple reason. Every piece of equipment we'll analyze - pumps, gearboxes, and all the rest will have at least one bearing somewhere in or near them. Diagnosing bearing problems in different types of equipment will be a fundamental part of your work as a vibration analyst. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Fan Vibrations | For many manufacturing plants, process industries, and utilities fan maintenance is a way of life. In this interactive online course we'll apply the vibration analysis process to diagnose developing fan problems. And there are two types of fans we'll examine. First the overhung type, in which the fan element or blade assembly is mounted on the end of a rotating shaft. And second, the center hung type, in which the shaft extends through the element and is supported on both sides. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Gear Vibrations | Analyzing vibration really means interpreting vibration, and nowhere is this point better illustrated than in the analysis of gear boxes. They are literally sealed metal boxes but, with modern equipment, an experienced vibration analyst can almost peer inside the box and evaluate the condition of internal components. That's what we'll do in this interactive online course - apply the analysis process to diagnose developing gear box problems. To help get you there we'll show you how to diagnose a gear mesh problem in a single reduction gear box, a gear mesh problem in a double reduction gear box, a bearing problem in a double reduction gear box and some other common gear problem signatures. | 0.5 | Fundamental |
| Applied Vibration Analysis: Analyzing Motor Vibrations | Analyzing motor vibrations should be easy enough - right? After all, the only moving part is the shaft and rotor assembly. Most component equipment: gear boxes, fans, and pumps are most often driven by electric motors. In this course we'll apply the analysis process to diagnose most developing motor problems. Our case histories will be taken from 2 types of motors: DC motors and AC induction motors. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Pump Vibrations | It's hard to imagine an industrial facility of any size without at least one pump. In this interactive online course we'll apply the analysis process, which is basic to vibration analysis, to diagnose developing pump problems. Also, we'll learn about an additional analysis tool - Trend analysis. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Spectral Data | Do you know the process and procedure for analyzing vibration spectral data? In this interactive online course, we present a critical phase in your applied vibration analysis training. Remember that the goal of this series of courses is for you to learn to diagnosis developing equipment problems by analyzing the vibration spectrum. In this course, you'll learn a 6-step process for analyzing spectral data. This may be the most important course in the series. | 0.5 | Intermediate |
| Applied Vibration Analysis: Collecting Spectral Data | The job of the vibration analyst can be broken into two primary functions, collecting spectral data and analyzing spectral data. In this interactive online course you'll learn to collect spectral data safely, accurately, and consistently. Everything begins with the data you collect, only it probably won't be just you. Any number of people might collect data, so consistent procedures and sound fundamentals are essential. To help you develop them we'll offer some basic guidance for establishing a database. We'll review some common transducer or probe designs and discuss selecting the right transducer for your equipment. We'll recommend some safety practices that should become second nature to you. We'll identify good work practices for collecting data. And we'll evaluate the amplitude of vibration when you find it. | 0.5 | Intermediate |
| Applied Vibration Analysis: Introduction | When you get complaints about vibration in a piece of equipment - do you know what to do? In this interactive online course, you will be introduced to the principles of machine vibration. We'll examine what machine vibration is. We'll define some common terms associated with vibration and identify the causes of vibration in different types of machinery, primarily machines with rotating components. We'll also look at some instruments used to detect vibration. In addition you will receive some guidelines to follow when collecting vibration data. | 1 | Intermediate |
| Asset Condition Management: Alignment and Balancing Training | "Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures." | 1 | Intermediate |
| Asset Condition Management: Motor Testing | "Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors." | 1 | Intermediate |
| Asset Condition Management: Setting Up an Oil Analysis Program | "Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel. " | 0.5 | Intermediate |
| Asset Condition Management: Vibration Analysis Training | "Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring." | 1 | Intermediate |
| Centerlining Methodology | Centerlining is a methodology used to reduce product and process variability and increase machine efficiency in manufacturing and other industrial processes. The two objectives of Centerlining are to determine the best settings for a production process and to ensure the best settings are always used during production. This course illustrates the key concepts of Centerlining and will guide your production team to produce products that are consistently made, which leads to satisfied customers and lower costs. | 0.25 | Intermediate |
| cGMP Essentials: Change Control | In this online interactive course, we'll be looking at change control. We're going to discuss why we need change control and what that process looks like. You'll see what areas are typically governed by change control. We're also going to look at the considerations you should have regarding how the change will impact the system, how you're going to implement the change, and follow the proper notification procedure. | 0.17 | Fundamental |
| cGMP Essentials: Data Integrity | "As more and more data is being generated in the pharmaceutical world, the integrity of that data must be protected. In this data integrity course, employees will understand what data is, what the regulatory expectations are for data, the controls used, good documentation practices and what kinds of data integrity issues exist." | 0.17 | Fundamental |

VectorSolutions™

# Continuous Improvement (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| cGMP Essentials: Deviation and CAPA | "Errors and issues happen. When they do, our employees need to know how to investigate these occurrences and how to prevent their recurrence. Deviation and CAPA walks employees through steps to take when performing a root cause analysis and the CAPA process." | 0.17 | Fundamental |
| cGMP Essentials: Good Personal Hygiene | "One of the easiest cGMP compliance practices is good personal hygiene. In this course, employees will learn why good personal hygiene is important and measures they can take to protect themselves, fellow employees and our customers." | 0.17 | Fundamental |
| cGMP Essentials: Intro to cGMP | "As a new pharmaceutical employee, it is important to understand the rules and regulations that govern the pharmaceutical business. Introduction to cGMP will educate all employees on the history of the US FDA, why we have good manufacturing practices and why they are important not only to our business, but for the health and safety of our consumers. In this online interactive course, we will discuss current good manufacturing practices, how they came about, and why they are important to the day-to-day quality standards set within our organizations." | 0.17 | Fundamental |
| Equipment Maintenance and Reliability | Defines equipment maintenance, and discusses its importance and benefits. Also covers some safety and work guidelines related to performing equipment maintenance. | 0.25 | Intermediate |
| Essentials of Lean Manufacturing | What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to "think Lean" and apply Lean methods and tools to improve the quality and efficiency of your company. | 1 | Intermediate |
| Essentials of Six Sigma | Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, it's management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently. | 0.75 | Intermediate |
| Industrial Housekeeping | Poor housekeeping practices create hazards in our workplace. The concept of housekeeping includes picking up, wiping up, and cleaning up. This course will cover the benefits of a clean workplace and how to practice good housekeeping. | 0.25 | Intermediate |
| ISO 9000 | The European Community (EC) is a single trading bloc including many countries in Europe. The International Organization for Standardization (ISO) is an organization working with the EC and other countries to develop worldwide standards for products and services. The series of quality system standards and guidelines is commonly called ISO 9000. The focus of this course will provide examples showing how process plant operations can be modified to comply with ISO 9000. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lean Manufacturing: Continuous Improvement and the PDCA Cycle | Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes. | 0.5 | Intermediate |
| Lean Manufacturing: Determining the Voice of the Customer | The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a businesses success and describes how to anticipate and meet customer needs and requirements once this data is captured. | 0.5 | Intermediate |
| Lean Manufacturing: Kaizen | Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet todays challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day. | 0.5 | Intermediate |
| Lean Manufacturing: Kanban | Did you know the word "Kanban" is of Japanese origin and translates to "billboard" or "signboard"? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it. | 0.25 | Intermediate |
| Lean Manufacturing: Poka-Yoke | This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction. | 0.25 | Intermediate |
| Lean Manufacturing: Pull Systems | This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While well introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes. | 0.5 | Intermediate |
| Lean Manufacturing: Standardized Work | This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting. | 0.5 | Intermediate |
| Lean Manufacturing: Value and Waste | Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value. | 0.5 | Intermediate |
| Lean Manufacturing: Value Stream Mapping | Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool. | 0.5 | Intermediate |

VectorSolutions™

# Continuous Improvement (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lean Manufacturing: Visual Management | Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information. | 0.25 | Intermediate |
| Meeting Customer Expectations | Meeting the needs and expectations of the customer is important in any successful product design. Waste, products with inconsistent-quality, and even a poor company reputation can lead to not meeting customer expectations. This course focuses on ways to discover the needs and expectations of the customer, the different categories of product features, and the importance of following established production procedures. | 0.25 | Intermediate |
| Operator Basic Care | Operator basic care (also known as operator essential care, operator driven reliability, asset basic care, or autonomous maintenance) is an equipment reliability program. Although the name and program details can vary, the general concept is to involve operators in the maintenance of their equipment. By engaging all employees, a consistent product output and quality can be maintained throughout the expected lifespan of a machine. The theory is that maintenance should be driven by operators because they spend the most time with the equipment, so they know the most about the current machine condition. Operator basic care provides a foundation for a successful predictive maintenance program. This course covers the basic concepts and best practices of Operator Basic Care programs. | 0.5 | Intermediate |
| Overall Equipment Effectiveness | "Overall Equipment Effectiveness (OEE) is a manufacturing performance metric that is used to identify the sources of lost production and measure improvement efforts.<br>In this course we will discuss the purpose of OEE and how it is calculated. We will define availability, performance, and quality factors. We will also describe how to implement and analyze OEE and define the Six Big Losses, as well as how to reduce them." | 0.75 | Intermediate |
| Reliability Engineering Essentials | This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world. | 1 | Intermediate |
| Reliability Essentials for Operators and Technicians | This course is intended to present the essentials of Reliability. Operators and technicians will be able to apply basic concepts related to reliability to work on system improvement, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but simple probability solutions, as they are found in the real world. | 0.75 | Intermediate |
| Seven Basic Quality Tools | The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses. | 0.25 | Intermediate |
| The 5S System: 5S for Safety - New Eyes for the Shop Floor | The 5S System is a set of universal principles and activities that sustain high performance in companies in any industry. This interactive online course will teach you how to focus the 5S System on safety. Understanding and following the 5S System for safety will give you the foundation to improve safety and productivity in your workforce. | 0.5 | Intermediate |
| The 5S System: An Introduction to 5S | Companies in many industries are turning to improvement approaches to maintain the high performance output that their customers demand. This interactive online course is the first of a four part series that teaches you how to carry out basic 5S activities in a target area of your workplace. The 5S System is a systematic approach that organizes and standardizes the workplace. It promotes safety, improved work flow, better product quality, reduced inventory waste, and above all a sense that you, the users, are in control of your work area. | 0.5 | Intermediate |
| The 5S System: Set in Order and Shine | The 5S System is a systematic approach that organizes and standardizes the workplace. It promotes safety, improved work flow, better product quality, reduced inventory waste, and above all a sense that users are in control of their work area. This interactive online course is the third of a four part series. You will learn about the second step in the 5S System: Set in Order and how to organize your workspace. You will also learn about the third step in the 5S System: Shine and how to maintain your equipment. | 0.5 | Intermediate |
| The 5S System: Standardize and Sustain | Many organizations are trying to reduce inventory waste and improve productivity through advance change initiative approaches. The 5S System will allow you to accomplish several specific benefits that support high performance in the workplace. This interactive online course is the final course in the 5S System series. This course will cover steps 4 and 5 of the 5S System: Standardize and Sustain. You will learn how to maintain and monitor the conditions that resulted from activities of the first three S's through standardization. You will also learn the steps to follow to develop new habits in order to sustain the 5S System. | 0.5 | Intermediate |
| The 5S System: Workplace Scan and Sort | An uncluttered, well-organized, and understandable workplace is an essential foundation for lean, low-inventory production. The 5S System is a systematic approach that organizes and standardizes the workplace. This interactive online course is the second of a four part series that teaches you how to complete a workplace scan and how to define a target area for improvement. You will learn how to remove excess and unnecessary items through the Red Tag Technique. You will also learn about the first step in the 5S system: Sort. | 0.5 | Intermediate |
| Total Productive Maintenance: Introduction | The materials in this course are designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM). In this interactive online course, you will learn about the essential elements of TPM, explore the fundamental strategies that are required for a successful TPM effort, and learn how to maintain and manage equipment cooperatively to maximize equipment effectiveness. | 0.5 | Intermediate |
| Total Productive Maintenance: Overall Equipment Effectiveness | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance with a focus on Overall Equipment Effectiveness (OEE). Overall Equipment Effectiveness means ""the amount of productive service equipment provides."" It provides a way to evaluate equipment operation and identify pieces of equipment that present opportunities for improvement. In this interactive online course, you will learn how to calculate OEE so you can analyze a piece of equipment and discover how its effectiveness can be improved. Interpreting the numbers will help you identify causes of loss, or waste and eliminate them." | 0.5 | Intermediate |
| Total Productive Maintenance: Predictive Maintenance | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM) with a focus on predictive maintenance. The early detection of developing problems is fundamental to preventive maintenance. However, some problems are difficult to detect early enough or accurately enough to safeguard equipment effectiveness.<br>In this interactive online course, you will learn that predictive maintenance techniques provide the means to identify deterioration not yet detectable with the five senses, and to measure the amount of deterioration accurately so that parts may be replaced at the optimum time. If parts are replaced too late, equipment effectiveness suffers; if parts are replaced too early, unnecessary costs are generated. In this course, you will also learn that predictive maintenance is a cornerstone of TPM." | 0.5 | Intermediate |

| Continuous Improvement (Continued) | | | |
|---|---|---|---|
| **Title** | **Description** | **Hours** | **Level** |
| **Total Productive Maintenance: Preventive Maintenance** | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM) with a focus on preventive maintenance. TPM depends upon good basic maintenance practices. Without a disciplined, systematic approach to preventive maintenance, it is impossible to achieve a high level of equipment effectiveness.<br>In this interactive online course, you will learn how to select the equipment to focus on first, determine which preventive maintenance activities should be performed on that equipment, develop clear and specific instructions for performing those activities, and develop an effective preventive maintenance schedule." | 0.5 | Intermediate |
| **Understanding Facility Costs** | Discusses the relationship between revenue, cost and profit. Illustrates the importance of reducing both big and small waste streams at a facility. | 0.25 | Intermediate |

# Industrial Operations

| Title | Description | Hours | Level |
|---|---|---|---|
| 5S Methodology | Is your workplace a mess? Tired of spending hours searching for the right tool? This course will teach you about the 5S methodology, which focuses on organizing and standardizing the workplace to increase efficiency and effectiveness. Its five principles, sorting, straightening, sweeping, standardizing and sustaining, will make you and your co-workers better prepared to accomplish all of your tasks while being safer and more efficient in the process. | 0.25 | Intermediate |
| Above ground Storage Tanks, Part 1 | This course provides information about several types of above ground storage tanks, associated auxiliary equipment, and general safety concerns related to these tanks and the materials they contain. | 1 | Intermediate |
| Above ground Storage Tanks, Part 2 | Process facilities use above ground storage tanks to meet a variety of operating needs. Operators who work with these tanks need to know what their responsibilities are and how to carry them out safely. This course covers operator responsibilities in areas such as routine inspections, sampling, gauging, and material transfers. | 1 | Intermediate |
| Above ground Storage Tanks, Part 3 | Tank farm operators typically perform tasks such as gauging, sampling, and making material transfers on a daily basis. Other tasks are performed only periodically. One of these periodic tasks is taking a storage tank out of service and bringing it back in service. This course describes the basic steps for taking an above ground atmospheric tank out of service and putting it back in service. | 1 | Intermediate |
| Advanced Rigging, Part 1 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on equipment used for lifting loads that are heavy, bulky, or hard to balance. | 1 | Intermediate |
| Advanced Rigging, Part 2 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on the techniques used for lifting loads that are heavy, bulky, or hard to balance. | 1 | Intermediate |
| Aliphatic Chemistry | This course offers a condensed and simplified lesson on the characteristics and chemical behavior of the aliphatic branch of organic chemistry. The physical properties, molecular structure, and typical reactions of alkanes, alkenes, and alkynes are discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Alkylation Operations | High-octane gasoline is one of the most important and profitable refinery products, and the main function of many refinery units is to make products for gasoline blending. In the final blend, one of the cleanest burning components, and the component with the highest octane, is often alkylate; the end product of an alkylation unit. | 1 | Intermediate |
| Analytical Procedures | This course describes the major tasks associated with performing analytical procedures in a chemical lab. It discusses qualitative and quantitative analyses, accuracy and precision, validation of procedures, and the use of standards. It describes the following basic steps for performing an analysis: handling samples; choosing and performing appropriate analytical procedures; and collecting and reporting data, including calculating percent recovery and relative percent difference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Applied Vibration Analysis: Analyzing Bearing Vibrations | In this interactive online course you will apply the analysis process to diagnose developing bearing problems. We almost have to start with bearings for one very simple reason. Every piece of equipment we'll analyze - pumps, gearboxes, and all the rest will have at least one bearing somewhere in or near them. Diagnosing bearing problems in different types of equipment will be a fundamental part of your work as a vibration analyst. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Fan Vibrations | For many manufacturing plants, process industries, and utilities fan maintenance is a way of life. In this interactive online course we'll apply the vibration analysis process to diagnose developing fan problems. And there are two types of fans we'll examine. First the overhung type, in which the fan element or blade assembly is mounted on the end of a rotating shaft. And second, the center hung type, in which the shaft extends through the element and is supported on both sides. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Gear Vibrations | Analyzing vibration really means interpreting vibration, and nowhere is this point better illustrated than in the analysis of gear boxes. They are literally sealed metal boxes but, with modern equipment, an experienced vibration analyst can almost peer inside the box and evaluate the condition of internal components. That's what we'll do in this interactive online course - apply the analysis process to diagnose developing gear box problems. To help get you there we'll show you how to diagnose a gear mesh problem in a single reduction gear box, a gear mesh problem in a double reduction gear box, a bearing problem in a double reduction gear box and some other common gear problem signatures. | 0.5 | Fundamental |
| Applied Vibration Analysis: Analyzing Motor Vibrations | Analyzing motor vibrations should be easy enough - right? After all, the only moving part is the shaft and rotor assembly. Most component equipment: gear boxes, fans, and pumps are most often driven by electric motors. In this course we'll apply the analysis process to diagnose most developing motor problems. Our case histories will be taken from 2 types of motors: DC motors and AC induction motors. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Pump Vibrations | It's hard to imagine an industrial facility of any size without at least one pump. In this interactive online course we'll apply the analysis process, which is basic to vibration analysis, to diagnose developing pump problems. Also, we'll learn about an additional analysis tool - Trend analysis. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Spectral Data | Do you know the process and procedure for analyzing vibration spectral data? In this interactive online course, we present a critical phase in your applied vibration analysis training. Remember that the goal of this series of courses is for you to learn to diagnosis developing equipment problems by analyzing the vibration spectrum. In this course, you'll learn a 6-step process for analyzing spectral data. This may be the most important course in the series. | 0.5 | Intermediate |
| Applied Vibration Analysis: Collecting Spectral Data | The job of the vibration analyst can be broken into two primary functions, collecting spectral data and analyzing spectral data. In this interactive online course you'll learn to collect spectral data safely, accurately, and consistently. Everything begins with the data you collect, only it probably won't be just you. Any number of people might collect data, so consistent procedures and sound fundamentals are essential. To help you develop them we'll offer some basic guidance for establishing a database. We'll review some common transducer or probe designs and discuss selecting the right transducer for your equipment. We'll recommend some safety practices that should become second nature to you. We'll identify good work practices for collecting data. And we'll evaluate the amplitude of vibration when you find it. | 0.5 | Intermediate |
| Applied Vibration Analysis: Introduction | When you get complaints about vibration in a piece of equipment - do you know what to do? In this interactive online course, you will be introduced to the principles of machine vibration. We'll examine what machine vibration is. We'll define some common terms associated with vibration and identify the causes of vibration in different types of machinery, primarily machines with rotating components. We'll also look at some instruments used to detect vibration. In addition you will receive some guidelines to follow when collecting vibration data. | 1 | Intermediate |

VectorSolutions™

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Arc Welding Basics | "Arc welding is a process for joining pieces of metal. In this process, the high temperature produced by an electric arc near the surface of the metal causes the metal in the pieces to melt, and upon cooling, to fuse together. This course discusses the basic components and the three major types of arc welding. This course also illustrates different joint types, proper welding techniques, common weld defects, and finally the PPE that should be worn while arc welding." | 0.43 | Intermediate |
| Arc Welding Processes | "Arc welding is a process for joining pieces of metal. In this process, the high temperature produced by an electric arc near the surface of the metal causes the metal in the pieces to be joined to melt, and upon cooling, to fuse together. This course discusses the most common types of arc welding including shielded metal arc welding, gas metal arc welding, and gas tungsten arc welding. This course also illustrates each type and describes the variables and equipment used in each type." | 0.5 | Intermediate |
| Aromatic Chemistry | This course is designed to introduce participants to aromatic compounds and the reactions associated with them. It describes the structures of benzene and benzene-derived compounds and explains how aromatic compounds are named. It also covers various types of benzene reactions and identifies typical compounds produced through benzene reactions. In addition, it covers aryl halides, phenols, ethers, aldehydes, ketones, and arenes. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Asset Condition Management: Alignment and Balancing Training | "Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures." | 1 | Intermediate |
| Asset Condition Management: Motor Testing | "Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors." | 1 | Intermediate |
| Asset Condition Management: Setting Up an Oil Analysis Program | "Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel. " | 0.5 | Intermediate |
| Asset Condition Management: Vibration Analysis Training | "Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring. " | 1 | Intermediate |
| Atomic Absorption | In this course, participants are introduced to atomic absorption analysis. The course explains the basic principles of atomic absorption and introduces equipment used to conduct atomic absorption measurements for both conventional, or flame, and graphite furnace atomic absorption. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Auxiliary Vessels | "Process facilities contain a number of process units, and each process unit consists of one or more process systems. These process systems are made up of many different types of components, including various types of process vessels. A process operator must be familiar with the functions and features of all the different types of process vessels. This course focuses on a general group of vessels that can be referred to as auxiliary vessels. " | 1 | Intermediate |
| Azeotropic, Extractive, and Vacuum Columns | "Distillation is an important process in many plants. It is used to separate mixtures into various components. In some plants, distillation may be the final step in processing a material so that it meets product specifications. The heart of a distillation process is a distillation column, or tower. Depending on the needs of the plant, a distillation process may include conventional, azeotropic, extractive, or vacuum columns." | 1 | Intermediate |
| Basic Chemical Plant Operations | Chemical plants are groups of systems that work together to process raw materials and produce finished products. Participants will learn about the types of systems, equipment, and instrumentation commonly found in chemical plants; and about their operating and safety procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Lab Operations | This course provides laboratory participants with basic information about the responsibilities and duties of a lab technician. After completing this course, participants should be able to describe, in general terms, what lab technicians do and how they perform various functions. The course also covers safety hazards related to lab work and explains how lab technicians are protected from them. In addition, the course introduces the use of quality control in laboratories and shows how quality control affects lab operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Machines and Motion | This course discusses what mechanical advantage is and the different basic machines that have a mechanical advantage. These machines include levers, pulleys, wheels, inclined planes, wedges, screws, and gears. This course also describes the different types of motion including linear, circular, harmonic, and wave | 0.25 | Intermediate |
| Basic Refinery Operations | "Refineries produce many different types of products for a variety of uses. Although no single refinery produces all types of products, many refineries produce more than one type of product. This training unit examines the functions of refinery systems and equipment and describes the role of operators in refinery operations." | 1 | Intermediate |
| Basic Rigging, Part 1 | The purpose of this course is to provide participants with an overview of basic rigging. Safely accomplishing any rigging operation involves selecting the proper equipment, determining if the equipment is in acceptable condition, and properly carrying out all applicable procedures. This course focuses on basic rigging components. | 1 | Intermediate |
| Basic Rigging, Part 2 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on basic rigging procedures. | 1 | Intermediate |
| Blending Operations | "Petroleum refinery products are blends of components from various process units plus additives. When the necessary blend components have been combined and any additives have been added, the result is a finished product, such as gasoline, jet fuel, or diesel fuel. In this course, you will explore some common products and the components used to blend them, different methods for blending products, and typical operator responsibilities throughout blending operations." | 1 | Intermediate |

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Blueprint Basics | Blueprints are one of the most important communication tools that a company can possess. Blueprints must communicate ideas about many different subject areas to many different people within an organization. This course will discuss the front page, legend, and other aspects of blueprints. | 0.25 | Intermediate |
| Boolean Algebra, Part 1 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Boolean Algebra, Part 2 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Boolean Algebra, Part 3 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Buses and Storage | This course covers the definition of a bus and then discusses computer storage such as USBs, FireWire, CDs, and DVDs. | 0.5 | Intermediate |
| Centerlining Methodology | Centerlining is a methodology used to reduce product and process variability and increase machine efficiency in manufacturing and other industrial processes. The two objectives of Centerlining are to determine the best settings for a production process and to ensure the best settings are always used during production. This course illustrates the key concepts of Centerlining and will guide your production team to produce products that are consistently made, which leads to satisfied customers and lower costs. | 0.25 | Intermediate |
| Centrifuge Operations | In this course, you will learn that centrifugation is a mechanical means of separating materials of different densities by spinning them. You will also learn about the types of centrifuges, their auxiliary equipment, and their basic operating procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| cGMP Essentials: Change Control | In this online interactive course, we'll be looking at change control. We're going to discuss why we need change control and what that process looks like. You'll see what areas are typically governed by change control. We're also going to look at the considerations you should have regarding how the change will impact the system, how you're going to implement the change, and follow the proper notification procedure. | 0.17 | Fundamental |
| cGMP Essentials: Data Integrity | "As more and more data is being generated in the pharmaceutical world, the integrity of that data must be protected. In this data integrity course, employees will understand what data is, what the regulatory expectations are for data, the controls used, good documentation practices and what kinds of data integrity issues exist." | 0.17 | Fundamental |
| cGMP Essentials: Deviation and CAPA | "Errors and issues happen. When they do, our employees need to know how to investigate these occurrences and how to prevent their recurrence. Deviation and CAPA walks employees through steps to take when performing a root cause analysis and the CAPA process." | 0.17 | Fundamental |
| cGMP Essentials: Good Personal Hygiene | "One of the easiest cGMP compliance practices is good personal hygiene. In this course, employees will learn why good personal hygiene is important and measures they can take to protect themselves, fellow employees and our customers." | 0.17 | Fundamental |
| cGMP Essentials: Intro to cGMP | "As a new pharmaceutical employee, it is important to understand the rules and regulations that govern the pharmaceutical business. Introduction to cGMP will educate all employees on the history of the US FDA, why we have good manufacturing practices and why they are important not only to our business, but for the health and safety of our consumers. In this online interactive course, we will discuss current good manufacturing practices, how they came about, and why they are important to the day-to-day quality standards set within our organizations." | 0.17 | Fundamental |
| Chemistry: Basic Principles, Part 1 | Operators who work in process plants need to have a good understanding of the basic principles of chemistry, since processes often involve changes in the structure and composition of matter. This course will provide an introduction to chemistry, definitions of key terms, a review of compounds and mixtures, and an examination of solutions and how they are different from other mixtures. | 1 | Intermediate |
| Chemistry: Basic Principles, Part 2 | This course is designed to familiarize you with basic concepts associated with chemical reactions, material balancing, and organic chemistry. After completing this course, you should be able to use a chemical equation to explain what occurs during a chemical reaction, and explain how combustion reactions, replacement reactions, and neutralization reactions occur. You should also be able to explain what material balancing is and describe the basic steps involved in balancing the materials represented in a simple equation. In addition, you should be able to explain what organic chemistry is and how some organic chemicals are named. | 1 | Intermediate |
| Chemistry: Material Balancing | This course is designed to familiarize participants with basic concepts associated with using balanced chemical equations to calculate the amounts of reactants and products in process reactions. After completing this course, participants should be able to explain what material balancing is, verify that a chemical equation is balanced, and use a balanced equation to calculate the amounts of reactants and products in a reaction when the weight of one reactant is given. They should also be able to identify two basic factors that can limit the production of a process system, perform material balancing for a process system when reactant supply is the limiting factor, and perform material balancing for a system in which a specific amount of product is to be produced. | 2 | Intermediate |
| Chemistry: Reaction Rates | This course is designed to familiarize participants with basic concepts associated with the rates at which chemical reactions occur. After completing this course, participants should be able to describe two factors that determine the rates of reactions and describe the effects of temperature, pressure, concentration, and surface area on reaction rates. They should also be able to describe how catalysts affect reaction rates and how equilibrium reactions can be affected by temperature and pressure. | 2 | Intermediate |
| Clamps, Blades, Saws, and Bits | A number of projects, large and small, professional and amateur, require the use of basic tools, including clamps, saws, saw blades, and drills. Since these tools often come in a variety of styles, sizes, and purposes, knowing how to make the best choices is practical knowledge to have. This course will identify and describe the common types of clamps, saws, saw blades, and drills as well as safety guidelines for using them. | 0.5 | Intermediate |

VectorSolutions™

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Compressors and Pneumatic Tools | The purpose of this course is to teach the basic operating principles and general operating procedures for air compressors and the following pneumatic tools: jackhammers, tamps, pumps, circular air saws, and duct blowing rigs. The course shows how to use the tools efficiently for several construction and maintenance jobs. Emphasis is placed on the important safety precautions associated with using these tools. At the conclusion of this course, participants should have a basic understanding of how to operate an air compressor. They should also know how to use pneumatic tools safely and efficiently on a job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Crude Distillation Operations | "Operators must properly monitor and control the distillation process in the crude unit so that the products leaving the unit meet process specifications. This course provides an overview of the operation of a crude distillation unit. The steps that crude oil goes through in the crude unit, process variables, and conditions that affect unit operation will also be examined. This course will also consider problems that might arise in the crude distillation unit and how to correct them." | 1 | Intermediate |
| Databases, Spreadsheets, and Word Processing | A database program assists in managing large collections of information. A database makes it easy to store, sort, and maintain information. This course will discuss database design, reports, spreadsheets, word documents, and toolbars. | 0.25 | Intermediate |
| Diagrams: Blueprints | This course is designed to familiarize participants with the basic features of construction blueprints. After completing this course, participants should be able to describe various types of blueprints, identify lines, symbols, and abbreviations that are commonly found in blueprints, and explain how to properly care for blueprints. | 2 | Intermediate |
| Diagrams: Industrial Process Systems | This course is designed to introduce participants to plant system diagrams and diagram symbols. After completing this course, participants should be able to identify and describe the purpose of several kinds of system diagrams, and describe the information found on each type. Participants should also be able to identify symbols commonly used on piping and instrumentation diagrams (P&IDs), describe the types of information typically found on a legend, and use a P&ID to locate the components of a system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Diagrams: Piping and Instrumentation | This course is designed to familiarize participants with the use of piping and instrumentation diagrams (P&IDs). After completing this course, participants should be able to describe the kinds of information that can be found on a P&ID and explain why this information is useful. They should also be able to explain how to use P&IDs to troubleshoot system problems. | 2 | Intermediate |
| Distillation: Basic Principles | "Many of the products we use every day are produced from raw materials. Distillation is a process often used to turn raw materials into finished products. Because distillation is involved in the production of so many products, it's important plant operators understand how it works.<br>In this interactive, online course we will begin by discussing the basic principles of distillation. We will define terms related to states of matter, heat and temperature, distillation, and pressure. We will also discuss some basic distillation processes, including separation of liquid mixtures, batch processes, and continuous distillation." | 0.5 | Intermediate |
| Distillation: Control Systems | "What are the goals of a distillation system? Simply put, they are to maintain an optimum production rate and to meet specifications that are set for its products.<br>In this interactive, online course, you will examine various factors that must be controlled if a distillation system is to meet its goals, and you will see how control systems provide the control that's needed.<br>During operation, different balances must be maintained and you must understand process temperatures, how they can affect the distillation process, and how they can be controlled. The final component is product composition; you will discover how the compositions of a distillation system's products are controlled." | 0.5 | Intermediate |
| Distillation: Operating Problems | How good are you at troubleshooting problems with distillation systems? This interactive online course is designed to familiarize participants with some of the problems that can occur during the operation of distillation systems. After completing this course, participants should be able to describe problems that can occur when the feed rate to a distillation column is incorrect, problems that can occur when the amount of reflux going back to the column is incorrect, and problems that can occur when the reboiler in a distillation system is operated improperly. | 0.5 | Intermediate |
| Distillation: System Startup and Shutdown | Getting the desired products from any distillation system depends on being able to operate the system properly. This interactive online course will teach you the steps involved in preparing and starting up a distillation system. You will also learn the procedures for a short-term shutdown, long-term shutdown, and emergency shutdown of a continuous vacuum distillation system. | 0.5 | Intermediate |
| Distillation: Towers, Reboilers, and Condensers | How familiar are you with the process of distillation or the components of distillation towers? This interactive online course is designed to familiarize participants with the basic principles of operation of distillation towers, reboilers, and condensers. After completing the course, participants should be able to describe the difference between a binary tower and a multidraw tower and explain how a multidraw tower operates. They should also be able to explain why the physical dimensions of a tower can vary, and they should be able to explain why vacuum distillation and azeotropic distillation are used. In addition, participants should be able to explain how various types of reboilers and condensers are used in distillation systems. | 0.5 | Intermediate |
| Dryers | Many raw materials and finished products in chemical plants are dried at some stage of processing. This training module will cover the basic principles of drying and how drying is accomplished in different kinds of dryers commonly used in chemical plants. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Drying Operations | The purpose of this course is to provide participants with a basic understanding of the operation of drum, paddle-type, and freeze-drying operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Electrical Drawings and Schematics | This course discusses recognizing electronic symbols, integrated circuits, and logic symbols. It also covers electronic schematics and the difference between logic and digital diagrams. | 0.25 | Intermediate |
| Environmental Awareness | Operators can play an important role in controlling the amounts of impurities that are released to the environment. It is, therefore, important for operators to have an understanding of current environmental regulations and preventive practices. This training module focuses on these regulations and the operator's role in controlling industrial pollution. | 1 | Intermediate |
| Equipment Maintenance and Reliability | Defines equipment maintenance, and discusses its importance and benefits. Also covers some safety and work guidelines related to performing equipment maintenance. | 0.25 | Intermediate |

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# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Essentials of Lean Manufacturing | What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to "think Lean" and apply Lean methods and tools to improve the quality and efficiency of your company. | 1 | Intermediate |
| Essentials of Six Sigma | Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, it's management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently. | 0.75 | Intermediate |
| Evaporation Unit Operations | The purpose of this course is to introduce participants to the principles of evaporation and the purpose of evaporation in process systems. The focus of the course is on the advantages and applications of various types of evaporators used in industry and on standard operator duties. This course consists of a streaming video course. It may also contain links to various Internet sites, and course reference material in a PDF format. | 1 | Intermediate |
| Fastener Basics | Devices that are used to connect two or more objects together mechanically, are called "fasteners." There are countless types of mechanical fasteners, and each one is specifically designed for a particular application. This module will identify and describe screw types, identify and describe bolt types, and describe how to use a torque wrench. | 0.25 | Intermediate |
| Filtration and Screening Unit Operations | This course focuses on the separation of mixtures by means of filtration and screening. The operation of devices used to accomplish filtration and screening are covered along with the operator's role and screening unit operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Flaring, Venting & Purging - OTFVP | Industrial process operations produce many different types of useful products. In many cases, however, these operations also produce waste materials that must either be recovered for reuse or safely discarded. Although waste materials may be solids, liquids, or gases, this course focuses on waste gases. Specific attention is directed to how waste gases are removed from process systems and safely disposed of. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fluid Catalytic Cracking Operations | "A typical petroleum refinery includes many different units that are associated with a variety of processes. One of the important units in a refinery is a fluid catalytic cracking unit, or ""cat cracker."" This course describes the basics of fluid catalytic cracking operations, with emphasis on the equipment that is used, the process variables that are involved, and operator responsibilities." | 1 | Intermediate |
| Forklifts: Operation | This course is designed to familiarize participants with the basic design and operation of forklifts. After completing this course, participants should be able to describe how forklifts can be classified and identify the major features and common working dimensions of a forklift. They should also be able to explain how to inspect a forklift, how to recharge or refuel a forklift, and how to operate a forklift safely. | 2 | Intermediate |
| Fundamentals of Process Solubility | This course examines the basic concepts that relate to the processing of certain kinds of mixtures. Industrial applications of these concepts are also presented. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Gas Chromatography | This course explains how sample components can be separated by gas chromatography. It discusses the basic principles of the gas chromatography process and describes the major parts of a typical gas chromatography system, including an auto sampler, packed columns, capillary columns, a flame ionization detector (FID), and a data system. It describes the major steps of a chromatographic analysis, including sample preparation and injection, sample separation, component detection, and data processing. It also discusses the basic features of a typical gas chromatogram and describes how the information presented on a gas chromatogram is used for qualitative and quantitative analysis. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| General Troubleshooting Strategies | Effective troubleshooting uses various techniques to diagnose and fix problems. A series of logical steps will help to speed up the troubleshooting process. Rarely will simply guessing potential solutions for a problem work (or it may provide only a quick fix). There are five steps in the troubleshooting process. This course will discuss these five steps in detail. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Datum Selection and Interpretation | When using geometric dimensioning and tolerancing (GD&T) to describe a part, you often need to specify the orientation or location of a part feature with reference to other features on the part. From the perspective of a designer, two things must be kept in mind. First, you must communicate to the manufacturer or inspector how to treat imperfect features when making or measuring a part. Second, you must communicate the functional intent of the part. In this interactive, online course, you will explore datum selection and notation so you can learn to communicate these requirements. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Form and Size Tolerances | Geometric dimensioning and tolerancing (GD&T) is a symbolic language used to communicate the allowable variation within a product assembly and standardizes variations in measurement. Size tolerances define the allowable variation in the size of a feature, while form tolerances describe the allowable variations in the contours of features and surfaces on a part. In this interactive, online course, we will discuss size tolerances, and form tolerances, as well as cylindricity, and circularity. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Introduction | GD&T is a symbolic language that is used to accurately describe mechanical parts and to define the allowable deviations in size, form, and location for each feature, in a manner that allows the greatest flexibility for the manufacturer, while ensuring that the part will function as intended. This interactive, online course provides an introduction to GD&T fundamentals and basic notations. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Orientation Tolerances | "In Geometric Dimensioning and Tolerancing (GD&T), an orientation tolerance is used to control the parallelism, perpendicularity, or angularity of a part feature with respect to a frame of reference (defined by the datum references). This interactive, online course discusses the three different types of orientation tolerances: Parallelism, Perpendicularity, and Angularity and how they are communicated in GD&T." | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Position Tolerances | GD&T position tolerances and dimensions define where features are located on a part with respect to other features. Position tolerances are typically used on holes, pins, tabs, slots, and other features of size. They are particularly useful when dealing with patterns of holes. This interactive, online course will discuss the use of GD&T for positional tolerances. It will also discuss bonus tolerance and functional gauges, as well as special considerations for positional tolerances. | 0.25 | Intermediate |

VectorSolutions™

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Geometric Dimensioning and Tolerancing (GD&T): Profile and Runout Tolerances | Profile tolerances are typically used on irregular surfaces where flatness and position tolerances are insufficient to describe the part requirements. Runout tolerances are typically applied to rotating parts to maintain the form and location of features with respect to their bearing surfaces. This interactive, online course will show you how to properly apply and interpret profile tolerances for both surface and line elements, how to reference datums and apply basic dimensions to describe features, and how to use composite profile tolerances to reflect specific feature requirements. | 0.25 | Intermediate |
| Glassware | This course introduces participants to some of the basic methods of handling and using glassware in a laboratory environment. The course identifies and describes the functions of several commonly used types of laboratory glassware. Also covered are the basic procedures for using glassware such as pipettes and burettes. In addition, general safety procedures related to handling glassware are described, and efficient methods of cleaning and storing glassware are shown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hand and Power Tools | The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines. | 0.38 | Intermediate |
| Hand Tools, Part 1 | Hand tools are used every day in construction, manufacturing, and industrial settings as well as for do-it-yourself projects at home. Hand tools can make it safer and easier to do many different kinds of jobs. This course discusses the proper use and general care of a wide variety of hand tools. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hand Tools, Part 2 | Maintenance mechanics work with a variety of hand tools to perform many jobs, so it is important for mechanics to understand the function and care of common hand tools. Mechanics should know how to select the correct tool for any given job and how to use tools efficiently and safely. This course discusses the proper use and general care of pliers, vises, clamps and punches. | 1 | Intermediate |
| Hardware | This course describes some of the equipment typically used in the lab, with emphasis on the safe operation of the equipment. The course describes lab equipment used for mixing and for grinding. The setup and lighting of a typical gas burner and how to use the burner to heat glassware are covered. Heating equipment that does not require an open flame and safety practices associated with heating materials are discussed. Several types of pumps and their safe operation are described. The parts and operation of a gas cylinder are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Heat Exchangers: Cooling Towers | "In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons, it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower." | 0.5 | Intermediate |
| Heat Exchangers: Operation of Shell and Tube Types | "Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger." | 0.5 | Intermediate |
| Hot Metal Cutting Processes | Hot metal welding and cutting has been around for a long time, however, up until recently the applications were limited because generally the parts requiring welding had to be heated in a stationary fire or furnace. This course will briefly cover four of the major heat-based techniques for cutting or removing metal. This will include the principles and equipment used oxyacetylene cutting, air carbon arc cutting, plasma cutting, and laser cutting. | 0.5 | Intermediate |
| Hydrotreating and Catalytic Reforming, Part 1 | "Refineries develop and improve products such as high-octane, low-knock gasoline; aviation fuel; and petrochemical feedstocks. The major role of hydrotreating and catalytic reforming units is to work together to produce these fuels and petrochemical feedstocks. This course examines the reactions and equipment that are involved in hydrotreating and catalytic reforming and identifies the process variables that have to be monitored and controlled." | 1 | Intermediate |
| Industrial Housekeeping | Poor housekeeping practices create hazards in our workplace. The concept of housekeeping includes picking up, wiping up, and cleaning up. This course will cover the benefits of a clean workplace and how to practice good housekeeping. | 0.25 | Intermediate |
| Industrial Math: Algebra | This course is designed to familiarize participants with the basic concepts of algebra. After completing this course, participants should be able to define terms commonly associated with the use of algebra, isolate an unknown in an equation, and use the processes of distribution and factoring. They should also be able to explain what ratios and proportions are and to explain the difference between a direct proportion and an inverse proportion. Finally, participants should be able to use a calculator to solve math problems. | 2 | Intermediate |
| Industrial Math: Basic Operations, Part 1 | This course is designed to introduce participants to the basic principles of addition, subtraction, multiplication, and division. After completing this course, participants should be able to describe how to add, subtract, and multiply numbers in vertical columns, and to explain how short division and long division is done. They should also be able to explain powers of numbers and roots of numbers, and they should be able to describe shortcuts for multiplying and dividing with multiples of ten. | 2 | Intermediate |
| Industrial Math: Basic Operations, Part 2 | This course is designed to familiarize participants with basic mathematical operations involving signed numbers, averaging, rates, fractions, decimals, and conversions. After completing this course, participants should be able to perform basic mathematical operations with signed numbers, perform combined operations in the proper order, find the average of a group of numbers, and calculate rates. They should also be able to add, subtract, multiply, and divide with fractions and decimals. Finally, participants should be able to convert between fractions, decimals, and percents; write numbers using scientific notation; and use conversion tables. | 2 | Intermediate |
| Industrial Math: Formulas, Graphs, and Trends | This course is designed to familiarize participants with the basic principles associated with using formulas, reading and interpreting graphs, and detecting and analyzing trends. After completing this course, participants should be able to explain what a formula is and use formulas to find areas, volumes, and volumetric flow rates. They should also be able to describe how graphs and charts can provide information about process variables. In addition, participants should be able to describe basic procedures for detecting and analyzing trends. | 2 | Intermediate |

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# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Infrared Analysis | The purpose of this course is to present a fundamental treatment of how to perform infrared (IR) analysis. The course starts by describing the basic concepts underlying IR, and then describes several methods used to prepare samples for analysis. After the major components of a typical IR spectrometer are identified, a demonstration of how to perform IR analysis is presented. The course concludes by introducing the graph used to show the results of an analysis, describing the characteristics of a typical IR spectrum, and identifying different ways IR results can be used in chemical plants. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Inorganic Chemistry | Inorganic Chemistry is designed to introduce participants to some of the terms and principles associated with basic chemistry. The basic structure of an atom is described, and the ways atoms combine with each other are explained. In addition, the periodic table is introduced and used to determine mass relationships described by chemical reactions. This course also covers how chemical reactions can be affected by various conditions, and special attention is paid to equilibrium reactions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Input and Output Devices | This course covers the basics of all different kinds of input and output devices for computers from keyboards to the mouse. It also discusses data sorting, user data inputs, image inputs, visual outputs, audio outputs, and networks. | 0.25 | Intermediate |
| Ion Concentration Analysis | This course introduces participants to the basic principles associated with ions as well as laboratory procedures that depend on the presence of ions. The course includes an explanation of how ions are formed and how they can be represented. In addition, the course describes how a pH meter can be used to measure the acidity or alkalinity of a liquid and how a conductance meter can be used to measure a liquid's ability to conduct current. The course also includes an explanation of the process of ion exchange chromatography. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| ISO 9000 | The European Community (EC) is a single trading bloc including many countries in Europe. The International Organization for Standardization (ISO) is an organization working with the EC and other countries to develop worldwide standards for products and services. The series of quality system standards and guidelines is commonly called ISO 9000. The focus of this course will provide examples showing how process plant operations can be modified to comply with ISO 9000. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lab Safety: Electrical Safety in the Laboratory | This interactive course on Electrical Safety in the Laboratory emphasizes the need for safety when using electricity, and discusses how to reduce the potential for accidents involving electrical shock, fire and explosions. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Flammables & Explosives in the Laboratory | This interactive course on Flammables and Explosives in the Laboratory discusses the nature of flammable and explosive materials, as well as hazards associated with their use. It also reviews the proper handling procedures and personal protective equipment that should be used when working with these substances. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: GHS Safety Data Sheets in the Laboratory | This interactive course on GHS Safety Data Sheets in the Laboratory reviews the composition of GHS Safety Data Sheets, the information that's contained in each section and how SDS's are different from Material Safety Data Sheets. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Handling Compressed Gas Cylinders in the Laboratory | This interactive course on Handling Compressed Gas Cylinders in the Laboratory examines how gas cylinders work, the hazards that are associated with them and the need for caution when using or storing a cylinder. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Laboratory Ergonomics | This interactive course on Laboratory Ergonomics discusses the need to set up work areas correctly, as well as how to minimize the strain of using laboratory equipment, tools and instruments. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Laboratory Hoods | MARCOM's interactive course on Laboratory Hoods emphasizes how to properly use laboratory hoods and how to test them to ensure correct functioning... as well as discusses how hoods can protect an experiment, the facility, and most importantly, the employee. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Orientation to Laboratory Safety | This interactive course on Orientation to Laboratory Safety shows both new employees and seasoned veterans the importance of safety in the laboratory... as well as reviews the OSHA regulations and good safety practices that apply to the laboratory environment. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: OSHA Formaldehyde Standard | This interactive course on The OSHA Formaldehyde Standard provides training that is required by this standard, and focuses on the rules and procedures that the standard establishes for working with this potentially dangerous chemical. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Planning for Laboratory Emergencies | This interactive course on Planning for Laboratory Emergencies discusses how to minimize damage and prevent injuries if an emergency should occur. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lab Safety: Preventing Contamination in the Laboratory | This interactive course on Preventing Contamination in the Laboratory emphasizes the need to recognize situations that could lead to contamination, and discusses what can be done to prevent contamination from occurring. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Safe Handling of Laboratory Glassware | This interactive course on Safe Handling of Laboratory Glassware discusses the nature of various types of glassware, and the problems it can cause... as well as the need for employees to use and maintain laboratory glassware safely. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Safety Showers & Eye Washes in the Laboratory | This interactive course on Safety Showers and Eye Washes in the Laboratory reviews the correct ways to use this equipment, and emphasizes the need for quick action after a chemical splash or spill. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Technician Math, Part 1 | This course demonstrates some math fundamentals necessary to perform various calculations in the lab. The metric (SI) measurement system is described and practical instruction is given on the conversion to English units and vice versa. Exponential numbers are explained, and participants are shown how to perform arithmetic operations with them. Also, the rules for significant figures and rounding are described. Converting between fractions, decimals, and percents is demonstrated; and finally, ratios and proportions are explained and examples of their practical use are shown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lab Technician Math, Part 2 | This course describes how to perform calculations that are involved in preparing some types of solutions commonly used in labs. Specifically, it discusses calculations required for preparing dilutions, mass percent solutions, volume percent solutions, molar solutions, and normal solutions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lab Technician Math, Part 3 | This course introduces basic concepts of statistics and statistical analysis that can be applied to lab work. It defines terms associated with basic statistical concepts and explains how statistical process control (SPC) can be used in labs. It explains how control charts (focusing on an individual X chart) can be used to monitor the performance of analytical systems and interpret the results of analyses. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lean Manufacturing: Continuous Improvement and the PDCA Cycle | Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes. | 0.5 | Intermediate |
| Lean Manufacturing: Determining the Voice of the Customer | The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a businesses success and describes how to anticipate and meet customer needs and requirements once this data is captured. | 0.5 | Intermediate |
| Lean Manufacturing: Kaizen | Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet todays challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day. | 0.5 | Intermediate |
| Lean Manufacturing: Kanban | Did you know the word "Kanban" is of Japanese origin and translates to "billboard" or "signboard"? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it. | 0.25 | Intermediate |
| Lean Manufacturing: Poka-Yoke | This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction. | 0.25 | Intermediate |
| Lean Manufacturing: Pull Systems | This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While well introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes. | 0.5 | Intermediate |
| Lean Manufacturing: Standardized Work | This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting. | 0.5 | Intermediate |
| Lean Manufacturing: Value and Waste | Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value. | 0.5 | Intermediate |
| Lean Manufacturing: Value Stream Mapping | Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool. | 0.5 | Intermediate |

VectorSolutions™

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lean Manufacturing: Visual Management | Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information. | 0.25 | Intermediate |
| Logic Technology, Logic Functions, Sequential Logic, and Analog Conversion | The field of electronics deals with information in the form of electrical signals. Most of the electrical signal information that people encounter is in analog form. An analog signal is one that is continuously variable between the minimum and maximum values. This course begin with a discussion on digital and analog signals, covers truth tables and common logic functions, and then concludes with logic circuits and analog conversions. | 0.5 | Intermediate |
| Mass Spectrometry | This course describes the process of mass spectrometry and the analytical instrument that is used to perform this process. The focus is on a typical bench top gas mass/mass spectrometry (GC/MS) system. The system featured in this course includes a gas chromatograph with a capillary column, directly coupled to a mass spectrometer. The course explains the basic principles of mass spectral analysis, identifies the major parts of a typical GC/MS system, and describes the major steps of sample introduction, ionization (by electron-impact ionization), fragmentation, separation by mass (in a quadruple mass analyzer), detection of ions (by an electron multiplier), and data processing. The basic features of a typical mass spectrum and a typical total ion chromatogram are also described, and the use of the data system for controlling the GC/MS and for data processing, including performing library searches of mass spectra, is discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Material Handling of Bulk Liquids | Every day large quantities of liquid products are transported in and out of industrial facilities. These products are generally carried by tank trucks, tank cars, or barges. This course discusses how loading, unloading, and other transfers of bulk liquids must always be done safely and efficiently. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Math: Basics | This course is designed to familiarize participants with basic mathematical applications that can be used on the job. After completing this course, participants should be able to interpret measurements that include fractions and decimal values, measurements in English and metric units, and perform mathematical applications involving fractions and decimals. They should also be able to calculate dimensions associated with rectangles, triangles, and circles. | 2 | Intermediate |
| Mathematics - Exponents | Exponents are used as shorthand for repeated multiplication of the same number and in scientific or engineering notation to simplify very large or small numbers. There are some simple rules that can help when working with exponents. This course will review squaring, cubing, exponent rules, scientific notation, and engineering notation. | 0.25 | Intermediate |
| Mathematics - Percentages and Fractions | This course discusses the definition of percent and fraction, how to change between numbers and percentages, how to properly write a fraction, as well as how to multiply, divide, add, and subtract fractions. | 0.25 | Intermediate |
| Matter States and Temperature | All matter on earth exists in one of three phases or states: solid, liquid, or gas. A substance's phase is determined by the speed of its molecular motion, often referred to as kinetic energy. Adding or removing heat energy from a substance can change it from one state to another. This course illustrates the types and properties of matter states, and concludes with a discussion of temperature scales and the different types of heat transfer. | 0.25 | Intermediate |
| Measurement - Dimensions | Distance measuring units include the U.S. standard, (inch, feet, yard), decimal-inch (tenth, hundredth, thousandth, ten-thousandth), or the metric (millimeter, centimeter, meter). Being able to measure distance or determining if something is square are integral parts of many projects. This can include weekend do-it-yourself jobs to major landscaping and construction projects. While measuring cannot be done without some variation, errors can be reduced by following basic principles covered in this course. | 0.25 | Intermediate |
| Meeting Customer Expectations | Meeting the needs and expectations of the customer is important in any successful product design. Waste, products with inconsistent-quality, and even a poor company reputation can lead to not meeting customer expectations. This course focuses on ways to discover the needs and expectations of the customer, the different categories of product features, and the importance of following established production procedures. | 0.25 | Intermediate |
| Metal Fabrication | This course begins by illustrating how to bend, shear, and saw metal using various machines. It then illustrates how to cut metal using a gas torch. The course concludes with a discussion of abrasives and the best practices while using abrasives. | 0.25 | Intermediate |
| Metals - Identifying Steel and Iron | This course covers how to identify steel and iron using specific tests including surface appearance, spark test, oxyacetylene torch test, magnetic test, and chip test. This course then discusses the advantages of iron, what steel is, and the different types of steels that are commonly used. | 0.25 | Intermediate |
| Metals - Physical Properties and Types | This module will cover metal types, alloys, impurities, hardness, toughness, tensile strength, ductility, malleability, and elasticity. It will also discuss the difference between ferrous and non-ferrous metals. | 0.25 | Intermediate |
| Networks Introduction | In all control systems, inputs pass information to the decision-making controller, which then passes information to output devices. The manner in which this "information-passing" process works varies with the type and complexity of the control system. This course will provide an overview of some different types of control systems, as well as some basic concepts that apply to control system networks. | 1 | Intermediate |
| Networks: Fiber Optic Systems | This course is designed to familiarize participants with the basic operating principles of fiber optic systems and some of the basic installation and testing methods. After completing this course, participants should be able to describe characteristics of glass fibers and describe the function and types of fiber optic connectors. They should also be able to describe basic procedures for installing and testing fiber optics. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Networks: Setting Up and Troubleshooting | This course is designed to familiarize participants with basic concepts that apply to setting up and troubleshooting control networks. After completing this course, participants should be able to describe different types of cables and connectors that are used to link together devices in control networks. They should also be able to describe basic procedures for installing, testing, and troubleshooting control networks. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| On-the-Job-Training: Implementation and Evaluation | This course is designed to familiarize participants with basic concepts associated with on-the-job (OJT) training of plant operators. After completing this course, participants should be able to identify qualities that an effective OJT instructor should have and describe considerations associated with scheduling, planning for, and conducting on-the-job training. They should also be able to describe how the participant, the instructor, and the overall OJT program can be evaluated. | 2 | Intermediate |
| On-the-Job-Training: Preparation | This course is designed to familiarize participants with basic concepts associated with on-the-job training (OJT) of plant operators. After completing this course, participants should be able to compare OJT and classroom training and describe the basic steps in a formalized OJT program. They should also be able to explain how to determine specific training needs for a participant, and they should be able to describe training materials that are commonly used for OJT. | 2 | Intermediate |
| Operations: Basic Principles | In this course, you will learn how a plant responds to load demand changes and what the basic responsibilities of an operator are during a load change. You will describe the basic function of bearings, identify sliding surface bearings and roller contact bearings, and know some of the operator responsibilities for checking bearings and maintaining lubrication. | 1 | Intermediate |
| Operator Basic Care | Operator basic care (also known as operator essential care, operator driven reliability, asset basic care, or autonomous maintenance) is an equipment reliability program. Although the name and program details can vary, the general concept is to involve operators in the maintenance of their equipment. By engaging all employees, a consistent product output and quality can be maintained throughout the expected lifespan of a machine. The theory is that maintenance should be driven by operators because they spend the most time with the equipment, so they know the most about the current machine condition. Operator basic care provides a foundation for a successful predictive maintenance program. This course covers the basic concepts and best practices of Operator Basic Care programs. | 0.5 | Intermediate |
| Operator Responsibilities: Advanced Operator Responsibilities | This training unit is designed as a refresher for experienced operators and a look at the operator's changing role. The specific areas covered include operator responsibilities for safety, data collection, production, and interpersonal communications. | 1 | Intermediate |
| Operator Responsibilities: Basic Operator Responsibilities | Modern industrial facilities include complex groups of systems serving a multitude of functions. These systems, which consist of equipment, piping runs, and electrical cables, all work together to process raw materials into final products that can be supplied to customers. Many groups of people are involved in the operation of an industrial facility. This course focuses on the basic responsibilities of the people who operate process systems. | 1 | Intermediate |
| Operator Responsibilities: Communication | This course is designed to familiarize participants with basic operator responsibilities associated with interpersonal relationships and data collection and use. After completing this course, participants should be able to describe the components of a basic communication model and describe an operator's responsibilities for communicating with other plant personnel, customers, and members of the surrounding community. They should also be able to describe operator responsibilities associated with collecting and using written data and with participating in effective shift changes. | 2 | Intermediate |
| Operator Responsibilities: Introduction | How much do you know about how plants are operated? In this online interactive course we will cover how in a plant, many different systems work together to turn raw materials into finished products. Many different people work together to make sure the systems work the way they should. Some of these people are the plant operators who are responsible for running the process systems. | 0.5 | Intermediate |
| Operator Responsibilities: Plant Production and Safety | The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with. | 0.5 | Intermediate |
| Operator Responsibilities: Trends, Maintenance, and Emergencies | This course is designed to familiarize participants with basic operator responsibilities associated with trend analysis, equipment maintenance, and emergency situations. After completing this course, participants should be able to describe ways to detect and analyze trends, explain how work orders are used, and describe how to perform some minor maintenance tasks. They should also be able to explain how operators can prepare for emergency situations and describe operator responsibilities during emergencies. | 2 | Intermediate |
| Optical Analysis | In this course, the basic principles and operation of optical analytical instruments are discussed. This course looks at the basic principles, operation, and use of colorimeters, polarimeters, turbidimeters, nephelometers, and refractometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Overall Equipment Effectiveness | "Overall Equipment Effectiveness (OEE) is a manufacturing performance metric that is used to identify the sources of lost production and measure improvement efforts.<br>In this course we will discuss the purpose of OEE and how it is calculated. We will define availability, performance, and quality factors. We will also describe how to implement and analyze OEE and define the Six Big Losses, as well as how to reduce them." | 0.75 | Intermediate |
| Oxyacetylene Welding Equipment and Safety | "Oxyacetylene welding, also known as gas welding, is a process which relies on the combustion of oxygen and acetylene to produce a very hot flame. When these gases are mixed together in the correct proportions, a flame is produced with a temperature that is sufficient to melt steel.<br>This course will cover the basics of oxyacetylene welding and some best practices that should be followed in order to be safe on the job. We will go over how oxygen and acetylene are used in gas welding, the equipment that makes up a gas welding rig, and the PPE required to maintain a safe welding environment." | 0.5 | Intermediate |
| Painting and Coating Basics | "Surfaces are often painted or coated to protect them against corrosion and degradation. Metal corrosion is of particular concern because it can cause equipment failures, which can lead to safety problems, environmental issues, lost production, and increased costs.<br><br>Wood surfaces are also often painted or coated to provide protection from insects, fungi, and weathering. Paints and coatings for use on masonry surfaces must be formulated for the high pH levels that are often present.<br><br>Prior to painting or coating, surfaces must be properly prepared, which may include cleaning, sanding, drying, and sometimes priming, in order to achieve even coverage and good adhesion. " | 0.25 | Intermediate |

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Personal Safety for Lab Technicians | This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Physics Basics | Understanding physics is a huge endeavor as it covers so many different scientific elements, from the gravity that keeps people from floating into space to the momentum that keeps an object in motion. Simply defined, physics is a branch of science that studies matter and its motion, as well as how it interacts with energy and forces. It covers such subjects as motion, electricity, work and energy, astronomy, waves and sound, light and optics, and nuclear physics and relativity. This module will focus on how physics relates to motion, work, and energy. | 0.5 | Intermediate |
| Plant Science: Fluid Systems | This course is designed to introduce participants to the characteristics, components, and operation of fluid systems. After completing this course, participants should be able to explain, in general terms, what a plant system is and what a fluid is. They should also be able to explain the basic layout of a liquid system and describe energy conversions in a liquid system. Participants should also be able to describe the basic parts of a compressed air system and the basic operation of several gas and vapor system devices. | 2 | Intermediate |
| Plant Science: Forces and Machines | This course is designed to introduce participants to scientific principles associated with applied forces and the operation of basic machines. After completing this course, participants should be able to define work, power, and efficiency; and explain the mechanical advantage of this inclined plane and the lever. They should also be able to explain the hydraulic principle and the relationship between friction and the operation of machines. | 2 | Intermediate |
| Plant Science: Gases and Flowing Liquids | This course is designed to familiarize participants with basic concepts associated with the properties of gases and flowing liquids. After completing this course, participants should be able to describe the major properties of gases and explain how these properties are related. They should also be able to explain how pressure can be measured and to describe the effects of flow, velocity, and friction on the head pressure of a liquid. | 2 | Intermediate |
| Plant Science: Heat | This interactive training is designed to introduce you to some of the basic principles associated with heat and heat transfer. In this course, we will describe some of the effects of heat, the relationship between temperature and thermal energy, and the Law of Energy Conservation. We will define the terms “sensible heat” and “latent heat.” Also, we will discuss the effects of pressure on the temperature at which a substance undergoes a phase change. | 0.5 | Intermediate |
| Plant Science: Heat Transfer | This interactive online course is designed to introduce you to the fundamentals of heat transfer and the basic operation of a typical heat exchanger. We will describe the effects of a temperature difference on heat transfer and the three modes of heat transfer. We will also explain the basic operation of a shell and tube heat exchanger and identify problems that can occur in a heat exchanger | 0.5 | Intermediate |
| Plant Science: Process Dynamics and Measurement | This course is designed to familiarize participants with the characteristics of dynamic process operation and with devices that are commonly used to measure process variables. After completing this course, participants should be able to explain what resistance and capacitance are in process systems and to describe factors that affect the response of a process system to operating changes and process disturbances. Participants should also be able to describe devices that can be used to measure pressure, flow, level, and temperature. | 0.5 | Intermediate |
| Plant Science: Solids and Liquids | This course is designed to familiarize participants with basic scientific principles that relate to solids and liquids. After completing this course, participants should be able to describe the general molecular structure of solids, liquids, and gases. They should also be able to describe specific properties associated with solids and liquids. | 2 | Intermediate |
| Plastic and Rubber Basics | Plastics and rubbers are used in many industrial and non-industrial applications. This course discusses the definition of plastics and rubbers as well as their types, properties, and applications. This course also illustrates cutting, drilling, shaping, and fastening plastics. | 0.25 | Intermediate |
| Portable and Emergency Equipment | This training program focuses on common types of portable and emergency equipment that are found in industrial facilities. Some types of portable equipment are used to periodically analyze conditions in a process or inside process equipment. Other types of portable equipment, such as pumps, have specialized roles that are determined by plant procedures and policies. Emergency equipment, such as respirators and fire fighting equipment, is used strictly during emergencies. | 1 | Intermediate |
| Precision Measuring Tools | This course covers micrometers and telescoping gauges. It also demonstrates how to read and use micrometers, dial indicators, digital calipers, thermometers, tachometers, and strobe RPM monitors. | 0.25 | Intermediate |
| Problem Solving Strategies | Problems arise in the workplace on a daily basis. Often times, they can be very difficult and time consuming to solve. Approaching the problem with a structured plan can help improve your efficiency, determine hidden causes, and increase the likelihood that your solution will actually fix the problem. This course illustrates key concepts using a step-by-step plan for a real world example, along with practical tools and strategies like the 5 Whys technique, that you can use when troubleshooting problems in your workplace. | 0.25 | Intermediate |
| Process and Instrumentation Diagrams | Process and Instrumentation Diagrams, also known as P&IDs, are basically maps meant to show process connections and equipment relationships pictorially. They are invaluable during the planning and installation of new equipment, maintenance planning and procedures, and when comparing as-installed controls to the original design. This module will discuss how P&IDs are used, how to read the symbols used on P&IDs, and a real world examples of a P&ID system. | 0.5 | Intermediate |
| Process Chemistry | Process chemistry is chemistry that applies to process systems. An understanding of process chemistry can help process industry personnel understand the chemical reactions that occur in process systems. This course examines how the principles of material balancing, reaction rates, and equilibrium reactions apply to the process industry. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Process Reactor Fundamentals - RCPRF | “When you’re working around reactors, your primary responsibility is to make sure that the chemical reactions occur safely and efficiently. In a very real sense, you’re responsible for controlling what goes on inside the reactors. In order to do that, you need to know some basic principles that govern reactor operations. Then, you can apply these principles to any reactor in your plant. This interactive online course focuses on the fundamentals of reactors used in process plants. Specific areas covered include the basic components of a reactor, reactor operation, types of reactors, auxiliary equipment associated with reactors, and the operator’s role in reactor operations.” | 1 | Intermediate |
| Process Sampling: Obtaining samples | Sampling is an important task performed to determine product quality. Operators routinely sample process fluids and solids at various stages of the production process. This activity explains why samples are taken in process systems, describes information that is typically included on a sample label, and describes how to obtain contaminant-free representative samples of process liquids, solids, and process gases. | 1 | Intermediate |

VectorSolutions™

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Process Sampling: Testing Samples | This course is designed to familiarize participants with basic procedures for performing tests on samples of process materials and products. After completing the course, participants should be able to describe how to perform a pH test, a percent solids test, a specific gravity test, and a titration. They should also be able to describe the operation of a gas chromatograph and how a gas chromatograph is used to perform tests on complex gas mixtures or solutions. | 2 | Intermediate |
| Pumping Stations - Pumps, Motors and Electrical Systems | "Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations.<br>This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations." | 2 | Fundamental |
| Quality Control and Assurance | This course discusses how quality control and quality assurance practices apply to virtually every task that a lab technician performs. It describes the major goals and requirements associated with quality control and quality assurance, and explains how quality control and quality assurance concerns apply to routine lab tasks, to sample handling and testing, and to documentation. It also describes audit requirements for maintaining lab quality control and assurance. (Note: Quality Control and Assurance is appropriate for most industrial labs. For labs that fall under federal regulations 21 CFR 210 and 211, which refer to drug products and bulk pharmaceutical chemicals, Current Good Manufacturing Practices may be the preferred course of instruction.)Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Refining Basics | A refinery uses a number of processing units to transform crude oil into a wide variety of products that are marketed to customers. This course examines the basics of crude oil and how it is processed in a refinery. | 1 | Intermediate |
| Refrigeration - Compressors, Valves and Piping | The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Properties | Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Selection | Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems. | 0.25 | Intermediate |
| Refrigeration - System Components | There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes. | 0.25 | Intermediate |
| Refrigeration - System Troubleshooting | Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance. | 0.25 | Intermediate |
| Refrigeration - Vapor-Compression Cycle | The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage. | 0.25 | Intermediate |
| Reliability Engineering Essentials | This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world. | 1 | Intermediate |
| Reliability Essentials for Operators and Technicians | This course is intended to present the essentials of Reliability. Operators and technicians will be able to apply basic concepts related to reliability to work on system improvement, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but simple probability solutions, as they are found in the real world. | 0.75 | Intermediate |
| RFID Applications | RFID technology offers a relatively inexpensive method of tagging virtually any object and then being able to search for and identify that object. This radio-based technology, combined with computers and databases which are able to access large amounts of data, creates a tool that can increase the speed and efficiency of just about any manufacturing, warehousing, transportation, or retailing operation. Adding read/write functionality and/or sensors expands upon the number of potential applications for this technology. | 0.5 | Intermediate |
| RFID Basics | RFID stand for "Radio Frequency IDentification." In RFID systems, "readers" use radio signals to communicate with data "tags." A "tag" consists of an antenna connected to a data-containing integrated circuit that can be attached to almost any object, thereby giving the object a unique identification number which can be read remotely. RFID technology is used to control building access, inventory, mass transit ticketing, and highway tolls, and it is being used to increase the security of new U.S. passports. | 0.5 | Intermediate |
| RFID Implementation | Many decisions must be made when setting up an RFID system. Even after major factors like frequency of operation, reader type, and tag type have been determined, there are still a number of issues that can seriously impact a project's success. These issues deserve consideration both during installation and operation, and include reader antenna location, orientation, and connections, multipath reflection, electromagnetic interference, reader collision, and packaging considerations. | 0.25 | Intermediate |
| RFID Readers | An RFID reader sends commands and information to an RFID tag and receives information from the tag. A reader consists of a transceiver, antenna, controller, and computer interface. Readers communicate with tags using either inductive coupling or backscatter coupling. Both techniques rely on the tag modifying the electromagnetic field to send encoded information back to the reader. Besides handling radio communications, the reader is responsible for performing data verification and passing tag data to a database. | 0.5 | Intermediate |
| RFID Tags | An RFID tag consists of an antenna that is connected to a data-containing integrated circuit. These small tags can be attached to almost any object, thereby giving it a unique identification number which can be read without contacting the object. Tags can be passive, operating on the energy of the radio waves of the reader, or active, which means they are powered by a built-in battery. RFID tags come in just about every shape and size imaginable. The packaging is determined by their intended use and the frequency at which they operate. | 0.5 | Intermediate |
| Rigging: Basic Lifting | This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability. | 2 | Intermediate |

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Rigging: Ladders and Scaffolds | This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds. | 2 | Intermediate |
| Sample Preparation | In Sample Preparation, participants are introduced to the ways samples are prepared before they are analyzed in a lab. The course begins by explaining the importance of sample preparation and of maintaining sample integrity. The course then focuses on the major tasks associated with sample preparation and describes various common sample preparation procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Scanning and Tracking Overview | Items need to be tracked for many reasons. In the supply chain, tracking allows a company to identify the current location of items and item counts. This information can be used to forecast item arrival date and future needs, trace items for recall and return, reduce shrinkage, and avoid counterfeit items. Accurate, up-to-date information about quantities and locations can improve the efficiency of the supply chain. This course covers tracking benefits, what to track, and other tracking information. | 0.25 | Intermediate |
| Separation and Isolation of Materials | Equipment and safe procedures for separating and isolating materials using various methods are covered in this course. The basic principles and operation of a simple distillation apparatus are discussed, and gravity filtration and vacuum filtration setups and procedures are demonstrated. The course also explains the basics of extraction and describes extraction equipment and procedures. Finally, the course explains and describes a crystallization procedure. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Seven Basic Quality Tools | The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses. | 0.25 | Intermediate |
| Statistical Process Control, Part 1 | "An important goal of every process plant is to produce a quality product at the lowest possible cost. In this course, you will explore how statistical process control, or SPC, can be used to help maintain consistent quality and reduce costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Statistical Process Control: Basic Control Charts | This course is designed to familiarize participants with some of the basic control charts used in statistical process control (SPC). After completing this course, participants should be able to describe the characteristics of X-bar charts, R charts, moving X-bar charts, moving R charts and individual X charts. They should also be able to explain what each chart represents and how to plot values on each chart. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Statistical Process Control: Introduction | This course is designed to familiarize participants with the basic principles of statistical process control (SPC). After completing this course, participants should be able to explain what SPC is and how SPC can be applied to a process. They should also be able to describe the basic elements of an SPC control chart and relate an SPC control chart to an X-Y graph and to a normal distribution curve. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Statistical Process Control: Process Variations | This course is designed to familiarize participants with some basic techniques for using statistical process control (SPC) to recognize and respond to variations in plant processes. After completing this course, participants should be able to describe how plotted values on control charts can be interpreted, describe how an operator can use SPC to recognize and respond to out-of-control conditions and process instability, describe basic considerations for using SPC with a computer, and explain how to use various types of attribute charts. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Steam Turbines | Equipment such as pumps, compressors, and fans is essential to the operation of an industrial facility. Before this equipment can operate, however, it must be supplied with power. Although electric motors are among the most common means of supplying the power necessary to drive equipment, other drivers, such as internal combustion engines, gas turbines, and steam turbines, are also used. This program focuses on steam turbines. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Symbols, Standards, and Schematics | One way in which electrical components are identified in drawings is by the use of schematic symbols. A schematic symbol either represents a single component in an electrical circuit, such as a pushbutton or motor, or a part of a component, such as with relays and starters. This course covers component representations, component abbreviations, electrical standard organizations, blueprint layout, and blueprint styles. | 0.25 | Intermediate |
| Table Saw Basics | Table saws are essential tools used to accurately cut lumber and sheet materials like plywood and particleboard. This course discusses the location and function of the major components of a typical table saw and safety guidelines to follow while working on and around a table saw. It concludes by illustrating how to adjust the blade height and blade tilt, as well as how to square the blade and set the cut width. Understanding the table saw will allow you to use the saw properly and effectively, and will help prevent you or your co-workers from being seriously injured. | 0.25 | Intermediate |
| Table Saw Operations | Table saws are essential tools used to accurately cut lumber and sheet materials like plywood and particleboard. This course discusses the location and function of the major components of a typical table saw, safety guidelines to follow while working on and around a table saw, several different cut types that can be performed by a table saw, and the techniques used make those cuts. Understanding how the table saw operates will allow you to use it properly and effectively, and will help prevent you or your co-workers from being seriously injured. | 0.25 | Intermediate |
| The 5S System: 5S for Safety - New Eyes for the Shop Floor | The 5S System is a set of universal principles and activities that sustain high performance in companies in any industry. This interactive online course will teach you how to focus the 5S System on safety. Understanding and following the 5S System for safety will give you the foundation to improve safety and productivity in your workforce. | 0.5 | Intermediate |
| The 5S System: An Introduction to 5S | Companies in many industries are turning to improvement approaches to maintain the high performance output that their customers demand. This interactive online course is the first of a four part series that teaches you how to carry out basic 5S activities in a target area of your workplace. The 5S System is a systematic approach that organizes and standardizes the workplace. It promotes safety, improved work flow, better product quality, reduced inventory waste, and above all a sense that you, the users, are in control of your work area. | 0.5 | Intermediate |

# Industrial Operations (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The 5S System: Set in Order and Shine | The 5S System is a systematic approach that organizes and standardizes the workplace. It promotes safety, improved work flow, better product quality, reduced inventory waste, and above all a sense that users are in control of their work area. This interactive online course is the third of a four part series. You will learn about the second step in the 5S System: Set in Order and how to organize your workspace. You will also learn about the third step in the 5S System: Shine and how to maintain your equipment. | 0.5 | Intermediate |
| The 5S System: Standardize and Sustain | Many organizations are trying to reduce inventory waste and improve productivity through advance change initiative approaches. The 5S System will allow you to accomplish several specific benefits that support high performance in the workplace. This interactive online course is the final course in the 5S System series. This course will cover steps 4 and 5 of the 5S System: Standardize and Sustain. You will learn how to maintain and monitor the conditions that resulted from activities of the first three S's through standardization. You will also learn the steps to follow to develop new habits in order to sustain the 5S System. | 0.5 | Intermediate |
| The 5S System: Workplace Scan and Sort | An uncluttered, well-organized, and understandable workplace is an essential foundation for lean, low-inventory production. The 5S System is a systematic approach that organizes and standardizes the workplace. This interactive online course is the second of a four part series that teaches you how to complete a workplace scan and how to define a target area for improvement. You will learn how to remove excess and unnecessary items through the Red Tag Technique. You will also learn about the first step in the 5S system: Sort. | 0.5 | Intermediate |
| The Safe Lab Environment | This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Total Productive Maintenance: Introduction | The materials in this course are designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM). In this interactive online course, you will learn about the essential elements of TPM, explore the fundamental strategies that are required for a successful TPM effort, and learn how to maintain and manage equipment cooperatively to maximize equipment effectiveness. | 0.5 | Intermediate |
| Total Productive Maintenance: Overall Equipment Effectiveness | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance with a focus on Overall Equipment Effectiveness (OEE). Overall Equipment Effectiveness means ""the amount of productive service equipment provides."" It provides a way to evaluate equipment operation and identify pieces of equipment that present opportunities for improvement. In this interactive online course, you will learn how to calculate OEE so you can analyze a piece of equipment and discover how its effectiveness can be improved. Interpreting the numbers will help you identify causes of loss, or waste and eliminate them." | 0.5 | Intermediate |
| Total Productive Maintenance: Predictive Maintenance | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM) with a focus on predictive maintenance. The early detection of developing problems is fundamental to preventive maintenance. However, some problems are difficult to detect early enough or accurately enough to safeguard equipment effectiveness. In this interactive online course, you will learn that predictive maintenance techniques provide the means to identify deterioration not yet detectable with the five senses, and to measure the amount of deterioration accurately so that parts may be replaced at the optimum time. If parts are replaced too late, equipment effectiveness suffers; if parts are replaced too early, unnecessary costs are generated. In this course, you will also learn that predictive maintenance is a cornerstone of TPM." | 0.5 | Intermediate |
| Total Productive Maintenance: Preventive Maintenance | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM) with a focus on preventive maintenance. TPM depends upon good basic maintenance practices. Without a disciplined, systematic approach to preventive maintenance, it is impossible to achieve a high level of equipment effectiveness. In this interactive online course, you will learn how to select the equipment to focus on first, determine which preventive maintenance activities should be performed on that equipment, develop clear and specific instructions for performing those activities, and develop an effective preventive maintenance schedule." | 0.5 | Intermediate |
| Treating and Sulfur Recovery Operations | "Crude oil contains valuable and desirable hydrocarbon molecules. In addition, however, raw crude and distilled fractions contain impurities. The type and amount of impurities in raw crude and distilled fractions may vary, depending on several factors, including the origins of the crude and the boiling ranges of the fractions. This course covers some treating processes that are used to remove or convert sulfur compounds." | 1 | Intermediate |
| Understanding Facility Costs | Discusses the relationship between revenue, cost and profit. Illustrates the importance of reducing both big and small waste streams at a facility. | 0.25 | Intermediate |
| UV-Visible Spectroscopy | This course is designed to introduce participants to the analytical technique of UV-visible spectroscopy. The course covers the properties of the electromagnetic spectrum and the basic principles of UV-visible spectroscopy as well as terms used to describe this analytical technique. The course also introduces the equipment used to perform UV-Visible spectroscopy and covers the way typical UV-visible spectroscopy analysis can be performed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Water Industry Hydraulics | This interactive online course covers the concepts, calculations, and operational uses of hydraulics in the water industry, and will examine the physics behind certain operations and processes within the water treatment industry. Subjects included in the course are density and specific gravity, pressure and force, head, head loss, pumping rates and pump heads, flow rates, and flow measuring devices. This course will examine each of these concepts in detail and explain their application. | 1 | Intermediate |
| Water Industry Maintenance on Pumps, Motors, and Circuits | "In your career as a water operator, you will work with many different types of pumps, motors, and circuitry. These components provide the beating heart of the water system, serving as the force that moves water through the plant for processing. This interactive online course will teach water operators how to properly work with and maintain a wide variety of pumps, motors, and circuits. This course will also identify how methods of corrosion control, proper pump safety, and the best techniques for moving pumps." | 1 | Intermediate |
| Weighing and Measuring Techniques | This course presents material related to weighing and measuring techniques commonly performed in laboratories. It begins by describing the operation of two types of instruments used to make mass measurements: mechanical and electronic balances. Then the techniques of reading various volumetric measuring devices (including graduated cylinders, pipettes, and burettes) are demonstrated. Next, the course presents demonstrations of how to make linear measurements using calipers and a measuring microscope. The course concludes with a segment on temperature measurements that describes the techniques used to read alcohol and mercury thermometers and to check the accuracy of liquid-filled thermometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

| Industrial Operations (Continued) | | | |
|---|---|---|---|
| **Title** | **Description** | **Hours** | **Level** |
| **Wood and Insulation Basics** | Almost any type of construction or remodel job, whether a do-it-yourself weekend project or a professional one, requires basic knowledge about which wood to choose, as well as what kind of insulation works best for any given situation. Knowing basic details about different types of wood and the proper use of insulation will help you complete your projects more efficiently. | 0.25 | Intermediate |
| **Wrenches and Hammers** | Wrenches and hammers are two of the most commonly used tools. From do-it-yourself weekend projects in the garage at home to large scale industrial construction, it is almost inevitable that wrenches and hammers of one kind or another will play a significant role. They are incredibly helpful, and make difficult jobs much easier and more efficient. This course will describe the different types of wrenches and hammers available as well as safe work practices for using them. | 0.5 | Intermediate |

# Electrical Maintenance

| Title | Description | Hours | Level |
|---|---|---|---|
| 2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy | "This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8." | 1 | Intermediate |
| 2020 NEC® Changes: Branch Circuit GFCI Protection | Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210. | 1 | Intermediate |
| 2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures | "This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units." | 1 | Intermediate |
| 2020 NEC® Changes: Devices, Lighting, and Gear | "This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®.<br>Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting." | 1 | Intermediate |
| 2020 NEC® Changes: Equipment for General Use | "This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators.<br>Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries." | 1 | Intermediate |
| 2020 NEC® Changes: Focus on Wiring Methods | This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. | 1 | Intermediate |
| 2020 NEC® Changes: General Requirements | The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space. | 1 | Intermediate |
| 2020 NEC® Changes: Overvoltage and Grounding & Bonding | This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. | 1 | Intermediate |
| 2020 NEC® Changes: Process Review and Updated Articles | "This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were<br>merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems." | 1 | Intermediate |
| 2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems | Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources. | 2 | Intermediate |
| 2020 NEC® Changes: Special Equipment | Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on underfloor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring. | 1 | Intermediate |
| 2020 NEC® Changes: Special Occupancies | The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations. | 1 | Intermediate |
| 2020 NEC® Changes: Wiring and Protection | Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection. | 2 | Intermediate |

# Electrical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| AC Fundamentals Review | This course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be "qualified." A person who does not meet this requirement should work under the direct supervision of a qualified person. | 1 | Intermediate |
| AC Generator Basics | "A generator is a device that converts mechanical energy into electrical energy. AC generators are commonly used to provide electrical energy for a wide range of commercial, domestic, and industrial applications. AC generators vary considerably in size, from small ones like automobile generators, to large generators that can supply power needs for a large city.<br>The purpose of this training course is to focus on AC generators that are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts)." | 1 | Intermediate |
| AC Generator Maintenance | The purpose of this course is to provide an overview of the operation and maintenance of large alternating current (AC) generators, which are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts). This course covers common AC generator maintenance tasks such as replacing brushes, performing overhauls, and conducting electrical tests. | 1 | Intermediate |
| AC Motor Basics | Electric motors provide the mechanical energy that is needed to operate a wide variety of equipment in an industrial facility. To make sure that the motors in their plant are operating properly, operators should be familiar with the fundamentals of motor operation and the basic operating characteristics of AC motors. In this course, the trainee will learn about the basic operation of an AC motor as well as its parts and functions. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 1 | This course introduces participants to AC motor controllers, which are devices, or groups of devices, that control the operation of alternating current (AC) motors. They can start, stop, or protect a motor; control its speed; and change its direction. By doing so, AC motor controllers make it possible to use motors more effectively in industrial operations. In most industrial facilities, electrical maintenance personnel are responsible for maintaining AC motor controllers and correcting any controller problems that arise. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 2 | Alternating current (AC) motor controllers serve a vital function in industrial facilities: They control the operation of AC motors. Therefore, when a controller breaks down, it is essential for electrical maintenance personnel to know how to locate the cause of the controller malfunction and be able to make the necessary corrections. It is also important for electrical maintenance personnel to be able to maintain the AC motor controllers in their facilities so that they operate with maximum efficiency and a minimum number of breakdowns. This course deals specifically with troubleshooting and maintenance procedures for AC motor controllers. | 1 | Intermediate |
| AC Motor Operation and Types | DC, or direct current is the electricity that flows in a single direction within a circuit or motor. AC, or alternating current, is the electricity that flows back and forth. The main components of an AC induction motor are the rotor and the stator. The motor converts electrical energy to mechanical energy when the rotor is pulled by the fluctuating magnetic field in the stator. This course will discuss single-phase and three-phase motor construction and operation. | 0.25 | Intermediate |
| Alternating Current | Alternating Current is a course designed to familiarize participants with how alternating current (AC) circuits work, and how voltage and current can change depending on the load, the source, and how the load and source are connected together. After completing this course, participants should be able to determine current and voltage values for an AC sine wave; explain how resistance, inductance, and capacitance affect AC circuits; explain how to calculate power in AC circuits and how to adjust power by correctly selecting and sizing circuit components; and describe the construction, operation, and use of various types of transformers. | 2 | Intermediate |
| Basic Electricity Review | This course introduces the fundamental principles of electrical theory as applied to electrical circuits and devices such as transformers, inductors, and capacitors. The general topics covered in this course include the nature of electricity, basic electrical quantities and their units of measurement, electrical circuits, and electromagnetism. | 1 | Intermediate |
| Batteries | A battery is a primary component of a substation or switchyard direct current (DC) control system. The function of the control system is to supply control power to operate critical devices such as protective relays, alarms and status indicators, supervisory and communications equipment, and switchgear operating circuits. This course describes the role of the battery in the DC control system, the components of a lead-acid battery, how a battery works, battery ratings, and general battery inspection steps. | 1 | Intermediate |
| Battery Cell Construction, Maintenance, Specifications, and Types | A cell converts chemical energy into electrical energy. The basic cell consists of two electrodes of dissimilar metals that are electrically isolated from each other, an electrolyte, and separators. A chemical reaction inside the cell produces electrons. Electrons must flow from the negative electrode to the positive electrode for the chemical reaction to take place. Unless electrons are flowing, the chemical reaction does not take place. Once you connect a load, the reaction starts. This course discusses many different aspect of battery cells. | 0.5 | Intermediate |
| Battery Types and Charging Theory | This course discusses multiple types of batteries and the theory of battery charging. It will cover the chemical action of charging, charging limitations, voltage and current sources, charge rates, and battery temperature. | 0.25 | Intermediate |
| Capacitors, Part 1 | Capacitors are used to control and increase the amount of capacitance in electrical circuits. In this course, participants will learn about the principles, function, and construction of capacitors as well as how to calculate capacitance and RC time constants of circuits. | 1 | Intermediate |
| Capacitors, Part 2 | Conditions exist in any transmission and distribution system that result in power losses in the systems and equipment that deliver power and in the systems and equipment that use power. In order to compensate for these power losses, utilities often use devices such as capacitor banks and shunt reactors. This course covers the functions of substation capacitors and reactors as well as how they can be safely cleared, maintained, and tested. | 1 | Intermediate |
| Circuit and Switch Basics | Electrical components are in many things we use on a daily basis, from lights, to computers, to electronic toothbrushes. Each of these devices includes one or more circuits. The basic components of a circuit are an energy source, a conducting material, and a load. In order for a circuit to be useful, it needs a method of control. This module will discuss circuits and how they can be controlled. | 0.25 | Intermediate |
| Circuits and Power | This course covers the four parts of an electrical circuit, as well as the differences between common circuit types including series, parallel, and combination circuits. This course illustrates electrical power and how to calculate it. Finally, it discusses power rating and power conversion and efficiency. | 0.25 | Intermediate |
| Conductors | Running cables and conductors is an integral part of electrical maintenance. The topics covered in this course include how cables and conductors are classified, the factors that must be considered in selecting a conductor or cable for a particular application, and procedures for installing, splicing and terminating cables and conductors used in low-voltage applications. | 1 | Intermediate |
| Construction of AC and DC Circuits | This course will define series circuits and parallel circuits as well as series-parallel circuits. This course will also discuss resistance and current in each type of circuit. | 1 | Intermediate |

# Electrical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Contactors and Relays | Contactors and Relays is a course designed to familiarize participants with the operation and use of magnetic contactors and relays. After completing this course, participants should be able to describe the operating principles of magnetic contactors and relays, and explain how both types of devices are used in electrical systems. They should also be able to describe the components and operation of low-voltage remote control switching systems. | 2 | Intermediate |
| Current, Voltage, and Resistance | "Electricity is a form of energy, and when considering circuits, electricity is defined as a flow of electrons. The flow of electrons is called current. Current flow occurs under the influence of a charge difference that is called voltage. Resistance is the tendency of a component to hinder the flow of current. This course briefly reviews the aspects of atomic structures that allow the flow of electricity and then describes the relationship between current, voltage and resistance in an electrical circuit." | 0.25 | Intermediate |
| DC Fundamentals Review | The fundamental relationships between current voltage and resistance in direct current (DC) circuits are basic to understanding all types of electricity and electrical circuitry. This course is intended as a general review of basic electrical concepts and circuit analysis for participants already possessing some background in electrical theory. | 1 | Intermediate |
| DC Generator Basics | A simple direct current (DC) generator consists of an armature coil with a single turn of wire. The armature coil cuts across the magnetic field to produce a voltage output. This course describes commutation in a DC generator, the major parts of a DC generator, and three basic ways a DC generator can be constructed. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 1 | This course provides participants with an introduction to direct current (DC) motor controller classification and parts identification, controller diagram symbols and schematics, and how DC motor controllers change motor speed and direction. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 2 | This course introduces participants to the basic steps for troubleshooting a direct current (DC) motor controller, different types of controller diagrams and how to read them, methods for identifying mechanical problems, and the maintenance needed to prevent or correct these problems. | 1 | Intermediate |
| DC Motor Maintenance | Anyone who is responsible for maintaining direct current (DC) motors in an industrial facility has to have a thorough understanding of the specific techniques and procedures that are used to keep DC motors in top operating condition. Familiarity with the ways that DC motors operate and the methods used to classify and identify them is also important. To help prepare electrical maintenance personnel for working on DC motors, this course contains specific information covering DC motor operation and classification as well as detailed descriptions of procedures for troubleshooting, disassembling, inspecting, and reassembling a typical DC motor. | 1 | Intermediate |
| DC Motor Operation | A DC motor is an electrical device powered by direct current, or DC. DC is a type of electrical current that flows in one direction only, from sources such as batteries or solar panels. DC may also be produced through the use of a rectifier, which is an electrical device that converts alternating current (AC) to DC. Although motor designs may vary, all DC motors perform the same basic function. They convert electrical energy into mechanical energy to spin, lift, wind, or move objects. | 0.25 | Intermediate |
| DC Motor Types | DC motors are electrical motors powered by direct current, or DC. DC is a type of electrical current that flows in one direction only, from sources such as batteries or solar panels. DC may also be produced through the use of a rectifier, which is an electrical device which converts alternating current (AC) to DC. This module will describe the design, operation, and applications of series, shunt, compound, permanent magnet, and separately excited motors. | 0.25 | Intermediate |
| Digital Multimeters and Troubleshooting | "A digital multimeter is a single instrument that is capable of measuring voltage, current, and resistance, so it is useful for troubleshooting electrical circuits and equipment. Voltage measurements can be made between any two arbitrary points in a circuit or relative to a single absolute ground point. Either method can be used to isolate component performance problems within a circuit. Current measurements with a multimeter require incorporating the meter into a circuit, so they are more difficult to make. Voltage and current measurements require that a circuit be energized. Resistance measurements require that the power be off and the tested component isolated from the rest of the circuit." | 0.5 | Intermediate |
| Direct and Alternating Current | Most electric power is generated and consumed in the form of alternating current (AC), and most meters that measure energy consumption are designed to measure AC power. Many of the principles associated with direct current (DC) circuits also apply to AC circuits. This course describes variations that account for differences between DC power and AC power. | 1 | Intermediate |
| Electric Motor Basics | Electric motors are key components of many consumer products and industrial processes, from kitchen mixers to pump motors generating thousands of horsepower. This course describes the operation and common uses for AC motors, DC motors, servomotors, and linear motors. | 0.5 | Intermediate |
| Electrical 1: Cable Tray | Cable Tray is a course designed to familiarize participants with cable tray components and installation techniques. After completing this course, participants should be able to identify the types of sections and the types of fittings used in cable tray assemblies, explain how cable tray is supported, and explain how cable tray sections are spliced. They should also be able to size cable tray for specific numbers and types of conductors. | 2 | Intermediate |
| Electrical 1: Commercial and Industrial Wiring | This course is designed to familiarize participants with wiring devices and wiring techniques used at commercial and industrial sites. After completing this course, participants should be able to identify various types of switches, enclosures, control devices, and receptacles. They should also be able to describe basic techniques for planning and installing branch circuits, mounting boxes, and working with conductors. | 2 | Intermediate |
| Electrical 1: Electrical Diagrams | This course is designed to familiarize participants with various types of electrical diagrams. After completing this course, participants should be able to explain why symbols are used on electrical diagrams, and how to obtain information from a title block and an equipment location index. They should also be able to explain how to use each of the following types of diagrams: block, single line, schematic, wiring, connection, interconnection, and raceway. | 2 | Intermediate |
| Electrical 1: Electrical Safety | The purpose of this course is to give participants a general understanding of basic principles of electricity and electrical safety. At the conclusion of this course, participants will have a basic understanding of various aspects of working safely around electrical equipment. | 2 | Intermediate |
| Electrical 2: Boxes and Fittings | Boxes and Fittings is a course designed to familiarize participants with various types of boxes and fittings used in electrical installations. After completing this course, participants should be able to identify different types of boxes and explain how to properly size outlet boxes, pull boxes, and junction boxes. They should also be able to identify different types of couplings, locknuts, and bushings, and explain what seal-off fittings are and how they are installed. In addition, they should be able to describe the three classes of hazardous locations that are identified in the National Electrical Code® (NEC®) and describe requirements for safely installing boxes and fittings in hazardous locations. | 2 | Intermediate |
| Electrical 2: Circuit Breakers and Fuses | Circuit Breakers and Fuses is a course designed to familiarize participants with the use of overcurrent protective devices in electrical installations. After completing this course, participants should be able to describe hazards associated with faults and overloads, describe the operation and common types of circuit breakers and fuses, and describe basic procedures for troubleshooting problems with circuit breakers and fuses. | 2 | Intermediate |
| Electrical 2: Electrical Lighting | Electric Lighting is a course designed to familiarize participants with various types of lamps and lighting fixtures and how install them. After completing this course, participants should be able to explain how the human eye sees and describe the characteristics of light. They should also be able to compare and contrast various types of lamps, and they should be able to explain how to install various types of light fixtures. | 2 | Intermediate |

# Electrical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical 2: Grounding | Grounding is a course designed to familiarize participants with both system grounding and equipment grounding. After completing this course, participants should be able to describe different types of grounding, describe National Electrical Code® (NEC®) requirements associated with system grounding, and describe how to size and install grounding electrode conductors. They should also be able to describe NEC requirements associated with equipment grounding, describe how to size equipment grounding conductors and bonding jumpers, and explain how to make sure that a grounding system is effective. | 2 | Intermediate |
| Electrical 2: Installation of Electrical Services | Installation of Electric Services is a course designed to familiarize participants with considerations associated with installing a commercial or industrial electric service. After completing this course, participants should be able to describe various types of electric services for commercial and industrial installations, and they should be able to identify and describe the main components of those services. They should also be able to explain how to select and install equipment for a single-phase service and a three-phase service. | 2 | Intermediate |
| Electrical 2: Motors: Theory and Application | This course is designed to familiarize participants with the operation and use of various types of electric motors. After completing this course, participants should be able to describe the basic construction and operation of direct current (DC) motors, alternating current (AC) induction motors, and AC synchronous motors. They should also be able to explain how motor speed can be controlled and how motors and motor circuits can be protected from damage, and they should be able to interpret the information on a motor nameplate. | 2 | Intermediate |
| Electrical Equipment: AC and DC Motors | This course is designed to familiarize participants with basic concepts associated with the operation of electric motors. After completing this course, participants should be able to explain the basic principles of motor operation and describe the basic operation of a simple alternating current (AC) motor and a simple direct current (DC) motor. They should also be able to identify the parts of a typical AC motor and a typical DC motor, and describe the function of each part. | 2 | Intermediate |
| Electrical Equipment: Electrical Production and Distribution | This course is designed to familiarize participants with basic concepts associated with the production and distribution of electric power for use by process systems. After completing this course, participants should be able to explain, in general terms, how off-site power comes into a plant and how a plant can generate power on site for its own use. They should also be able to identify and explain the functions of the major components in an electrical distribution system. In addition, participants should be able to describe general hazards associated with these systems and explain how the possible effects of the hazards can be minimized. | 2 | Intermediate |
| Electrical Equipment: Motor Controllers and Operation | This course is designed to familiarize participants with basic concepts associated with what motor controllers do and how they do it. Typical steps for starting up, checking, and shutting down motors are also covered. After completing this course, participants should be able to explain how motor controllers control and protect motors. They should also be able to describe how to start up a motor, perform operating checks on a motor, and shut down a motor. | 2 | Intermediate |
| Electrical Installations 1: Electrical Laws, Components and Circuits | "The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter's Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time." | 1 | Fundamental |
| Electrical Maintenance: Battery Systems | This course is designed to introduce participants to industrial battery systems, battery cells, and how to inspect and test batteries. After completing this course, participants should know the characteristics and basic operation of a typical battery system and its components. They should also understand how to inspect and perform basic tests on industrial batteries. | 2 | Intermediate |
| Electrical Maintenance: Fasteners | This course is designed to familiarize participants with various types of fasteners used in electrical work. After completing this course, participants should be able to describe common types of threaded and non-threaded fasteners and identify applications for which each type might be used. They should also be able to describe basic procedures for installing fasteners. | 2 | Intermediate |
| Electrical Maintenance: Introduction to the NEC | This course is designed to familiarize participants with the organization and layout of the National Electrical Code® (NEC®). After completing this course, participants should be able to use the NEC to locate specific types of information. | 2 | Intermediate |
| Electrical Maintenance: Relays, Part 1 | The purpose of this unit is to teach the basic principles of protective relays and to introduce directional and non-directional relays. The unit begins with the basic theory of protective relays, commonly used types of relays, and a brief explanation of how these relays are used. Additional details and examples of applications are provided for directional and non-directional relays. At the conclusion of this unit, the trainees should have a basic understanding of how protective relays work. They should be able to explain the need for protective relays and to list commonly used types of relays and their functions. They should also be able to explain how directional and non-directional relays work and give examples of situations in which they are used. | 1 | Intermediate |
| Electrical Maintenance: Relays, Part 2 | The purpose of this unit is to continue the development begun in Relays, Part 1 by introducing differential and pilot relays and discussing routine relay maintenance. The relays examined are differential relays and pilot relays used for differential comparison, phase comparison, and transfer tripping. The unit demonstrates how to inspect and maintain relays and how to put them in and out of service. At the conclusion of this unit, trainees should be able to explain how differential and pilot relays work and give examples of situations where they are used. They should also be able to describe how to approach routine inspection and maintenance and how to put a relay in or out of service. | 1 | Intermediate |
| Electrical Maintenance: Troubleshooting Electrical Circuits | This course is designed to familiarize participants with the use of basic troubleshooting procedures to troubleshoot problems in electrical circuits. After completing this course, participants should be able to identify and describe the main steps of a basic troubleshooting procedure and use the procedure to troubleshoot problems in electrical equipment and electrical systems. | 2 | Intermediate |
| Electrical Meters and Measurements | "A digital multimeter is a single instrument that is capable of measuring voltage, current and resistance. A digital multimeter is an indispensable general-purpose tool for troubleshooting electrical problems. There are other dedicated test instruments, which in various ways, go beyond the capabilities of the multimeter.<br>This module describes the typical features and usage of digital multimeters, as well as those of voltage detectors, clamp ammeters, megohmeters, digital thermometers and oscilloscopes." | 0.5 | Intermediate |
| Electrical Switches | An electrical switch is any device used to interrupt the flow of electrons in a circuit. This course begins with an overview of switches, then describes several types of common switches, and ends with common switch contact designs. | 0.25 | Intermediate |
| Electrical Systems | This course explains the basic components of an electrical distribution system, its function, and typical monitoring and protective equipment in the system. | 1 | Intermediate |
| Electrical Systems and Equipment, Part 1 | This course focuses on three of the major components in an electrical system: unit transformers, switchyards, and substations. This course also describes how these components fit into an electrical system, how they operate, and how they are checked to make sure they continue to operate properly. | 1 | Intermediate |

# Electrical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical Systems and Equipment, Part 2 | Electrical power systems deliver electricity to customers and to the plant. This course teaches how electrical power systems deliver electricity to customers and how electrical power systems adjust voltage and current for more economical power delivery. It also shows how electrical power systems deliver electricity to plant equipment and how the station service system can help ensure a continuous flow of power to the plant in the event of certain equipment malfunctions. Finally, it describes the essential service system, which helps operators maintain control during an emergency. | 1 | Intermediate |
| Electrical Wiring and Connections | "One of the greatest benefits of electricity is its ability to transfer energy from where it is generated to where it is needed. Electrical wires, cables and cords are used to accomplish the transfer. Electrical wiring consists of a conductive material such as copper surrounded by an insulating material such as thermoplastic.<br>The primary dangers associated with the distribution of electric power are electrocution and the generation of heat. These hazards must be considered when laying out and connecting all types of wiring." | 0.5 | Intermediate |
| Electrical Wiring: Cables and Conductors | This course is designed to familiarize participants with the basic construction and installation of electrical cables and conductors. After completing this course, participants should be able to describe the basic construction of cables and conductors, and describe how conductors are classified and rated. They should also be able to describe factors that affect the installation of a conductor for a specific application, and describe how to make splices and terminations. | 2 | Intermediate |
| Electrical Wiring: Conduit Installation | This course is designed to familiarize participants with the basic concepts of conduit and conduit fittings, and typical methods of cutting, bending, and installing conduit. After completing this course, participants should be able to describe the basic types of metallic and nonmetallic conduit, describe common types of conduit fittings, and describe procedures for cutting, bending, and installing metallic and nonmetallic conduit. | 2 | Intermediate |
| Electrical Wiring: Splices and Terminations | This course is designed to familiarize participants with common types of hardware and accessories used in making electrical splices and terminations, and how to prepare for and make various types of connections. After completing this course, participants should be able to identify basic types of terminals, connectors, tools, and materials used in making splices and terminations, and describe the applications for which they are suitable. They should also be able to describe how to make some common types of electrical splices and conductor terminations. | 2 | Intermediate |
| Electromagnetic Induction | Voltage applied to a conductor creates a magnetic field around that conductor. It is possible to reverse this process and for a magnetic field to generate a voltage in a conductor. For this to occur, there must be some relative motion between the conductor and the magnetic field. Electromagnetic induction takes place whenever a conductor moves through a magnetic field or when a magnetic field moves across a conductor. The voltage inducted in the conductor is called electromotive force. If the conductor is connected in a complete circuit, a current will flow. This module covers the definition of electromagnetic induction, voltage generators, the left hand rule, solenoids, relays, and transformers. | 0.25 | Intermediate |
| Electromagnetic Relays | When a fault occurs, current increases and voltage decreases. The increased current causes excessive heating, which depending on where the fault occurs, can result in a fire or an explosion. If the fault is not quickly isolated, it can cause damage that may result in loss of service. Various types of control systems are used to detect and isolate faults with minimum disturbance. A key component of all of these control systems is the protective relay. This course examines the functions and operation of some types of protective relays. | 1 | Intermediate |
| ESD Precautions | This course covers the principles of electrostatic discharge and the necessary precautions that should be taken to avoid damage to sensitive equipment. | 1 | Intermediate |
| Fuses | This course introduces participants to the basic components of various types of fuses, explains how fuses are rated and sized, and describes basic procedures for troubleshooting a cartridge fuse. | 1 | Intermediate |
| Ground Fault Circuit Interrupters | Normally, electric current is designed to flow through circuits at levels predetermined to be safe and return to the power source. Occasionally, conditions are created where the current amount or path is altered from the specified design. This course describes differences in the types of abnormal current flow that can occur within an electrical circuit because of the altered conditions and how ground fault circuit interrupters can protect against electrical shock. | 1 | Intermediate |
| Grounding | Grounding is the chief means of protecting life and property from electrical hazards such as lightning, line surges, short circuits, and ground faults. Grounding also helps ensure the proper operation of a system. This course provides an overview of what grounding is, why it is necessary, and effective grounding techniques. | 1 | Intermediate |
| Hand Tools for Electrical Work | "Electrical work requires the use of hand tools. Possessing the correct tools and the knowledge of how to use them correctly and safely is essential in order to successfully accomplish a job.<br><br>The term electrical work encompasses a variety of jobs which involve the use of a range of different tools. Within that range are a basic set of tools that are used by both apprentice and accomplished electricians alike. It is this set of basic tools that will be introduced in this module." | 0.5 | Intermediate |
| Insulators | Insulators, or nonconductors, are materials with electrons that are tightly bound to their atoms and require large amounts of energy to free them from the influence of the nucleus. Examples of insulators are rubber, plastics, glass, and dry wood. This course introduces participants to electrical insulators and their physical properties. In addition, it describes the various uses of insulators as well as some of the materials that are used as insulators. | 1 | Intermediate |
| Kirchhoff's Laws | Kirchhoff's two laws reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. This course introduces Kirchhoff's voltage and current laws and explains how to use these laws to calculate the voltage and current of circuits. | 1 | Intermediate |
| Lighting Basics | All workplaces depend on high quality lighting. In addition to providing illumination of workspaces, good lighting also plays a role in enhancing employee satisfaction and performance, as well as providing general comfort and safety. It reduces the risk of eye strain and any of the physical symptoms that accompany it, including headaches or neck pain. In the industrial setting, lighting does all this, plus it provides clear visual indication of functions, and control of various processes. This module will describe different types of lights and their common uses. | 0.25 | Intermediate |
| Magnetism and Electromagnetism Basics | A magnet is a material that attracts other metals. About 4,000 years ago, it was found that a stone called magnetite attracted pieces of iron. It was later found that a long piece of magnetite would align itself with the north and south poles of the earth. Experimentation showed that one end would always align with the North Pole and the other end with the South Pole. This module will discuss the principles of magnets, magnetic fields, and types of magnets. | 0.25 | Intermediate |
| Maintenance of Air and Oil Circuit Breakers | Circuit breakers are devices that open or close a set of electrical contacts to interrupt or complete an electrical circuit. A switchgear is a self-contained, enclosed assembly of circuit breakers and related components. Both circuit breakers and switchgear serve to protect plant circuits from various electrical problems. They can switch power on and off, and they can isolate circuits on which work is being performed. Electrical maintenance personnel are responsible for keeping circuit breakers and switchgear working properly and for performing periodic inspections and any necessary repairs. This course covers the operation and maintenance of high-voltage circuit breakers and switchgear (4 KV and above) that are typically used for in-plant distribution of electrical power. Many high-voltage circuit breakers used for transmission purposes consist of three single-phase breakers connected to a common operating mechanism. However, the distribution breakers discussed in this course are three-phase breakers. | 1 | Intermediate |

# Electrical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Maintenance of High-Voltage Circuit Breakers | After completing this course, you should be able to describe the basic operation of an oil circuit breaker, an air-magnetic circuit breaker, a vacuum circuit breaker, and an SF6 gas puffer circuit breaker. You should also be able to explain how each type of circuit breaker extinguishes an arc, and you should be able to describe basic procedures for racking out high-voltage circuit breakers and performing routine maintenance and testing on them. | 1 | Intermediate |
| Maintenance of Low-Voltage Circuit Breakers | Circuit breakers and switchgear are among the most common, yet critical, components of an industrial electrical system. Circuit breakers are devices that interrupt or complete electrical circuits. They protect systems and equipment from the effects of excessive current, and they provide a way to switch power on and off and isolate circuits or equipment on which work is being performed. Switchgear is basically a self-contained, enclosed assembly of circuit breakers and auxiliary devices. Part of your responsibility involves keeping circuit breakers and switchgear working properly. So, it is important for you to have a good understanding of how circuit breakers work and the types of maintenance procedures that are typically performed on them. | 1 | Intermediate |
| Motor Branch Circuit Protection | A motor branch circuit, or motor branch, is a circuit that provides power and protection for a motor. According to the National Electrical Code® (NEC®), a motor branch must have a means to disconnect the entire branch from its power supply and a means to protect the branch components from the potentially damaging effects of excessive current. How a motor branch functions and how the necessary protection is provided are the subjects of this course. | 1 | Intermediate |
| Motor Control Circuits and Functions | A small motor can be started by simply plugging it into an electrical receptacle or by using a switch or circuit breaker. A large motor requires a specialized switching unit called a motor starter or motor contactor. Once they are running, there are many other aspects to safe and efficient motor operation. Motor control refers to manual or automatic methods for starting, stopping, controlling speed, reversing, and protecting a motor. These controls are achieved using a variety of circuits, connections and sensors. | 0.5 | Intermediate |
| Motor Overload Protection | "Large alternating current motors are vital to modern life and industry. While motors are relatively simple devices, they can be installed or operated incorrectly or develop operational problems. For protection of the motor and for safety reasons, electrical motors require protective devices on their power supply systems.<br><br>Circuit breakers and fuses are used to provide protection from very high-current short circuits and ground faults. Overload devices are used to protect from longer period, moderate overcurrent events. This module will focus primarily on the role and function of the overload protection devices." | 0.25 | Intermediate |
| Motor Starters | When a relay is used to switch a large amount of electrical power through its contacts, it is designated by a special name: contactor or starter. This course covers contactors, incoming and auxiliary contacts, overload heaters, starter construction, starter operation, using heater elements in troubleshooting, and typical starter configurations. | 0.25 | Intermediate |
| Non-conductive Tools | Electricity can be dangerous to human beings. The use of non-conductive tools is one of many techniques used to reduce the chance of injury when working with electricity. Electrical conductivity is an intrinsic property of a material which quantifies the ability of a material to allow or oppose the flow of electrons produced by a voltage difference across the material. Non-conductive tools help protect an electrical worker by preventing the flow of electricity from a live source to the person holding the tool. | 0.25 | Intermediate |
| Ohm's Law | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that is commonly referred to as Ohm's Law. Ohm's Law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. This course describes Ohm's law; the units in which power is measured; and how to solve for power, voltage, current, and resistance using Ohm's Law. | 1 | Intermediate |
| Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in parallel are connected so the same voltage is applied to each component. In this course, participants will learn about the fundamentals of parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Raceways | This course is designed to familiarize participants with various types of raceways used to house electrical wiring. After completing this course, participants should be able to describe various types of raceways, including conduit, wireways, and cable trays. They should also be able to describe procedures for installing raceways in various types of environments. | 2 | Intermediate |
| Reading Electrical Diagrams, Part 1 | Electrical diagrams are drawings in which lines, symbols, and letter and number combinations are used to represent electrical circuits. In some plants, electrical diagrams may also be called prints, or blueprints. No matter what they are called, however, these drawings are valuable tools for anyone involved in making new electrical installations, locating electrical problems, or modifying existing circuits. There are many different types of electrical diagrams. Each type is drawn differently to provide different information. The four types of electrical diagrams covered in this course are block diagrams, single-line diagrams, schematic diagrams, and wiring diagrams. | 1 | Intermediate |
| Reading Electrical Diagrams, Part 2 | A great deal of electrical maintenance work depends on the ability of maintenance electricians to read and understand electrical diagrams. This course focuses on connection diagrams, interconnection diagrams, raceway diagrams, and logic diagrams. | 1 | Intermediate |
| Relay Basics and Types | A relay is a simple electromechanical switch designed to turn circuits on and off. This course covers relay operation and construction, the advantages and disadvantages of solid state and reed relays, and what time-delay relays are and their function. | 0.5 | Intermediate |
| Resistors | This course introduces participants to the function and atomic makeup of resistors, common materials used to construct resistors, and the typical styles used in everyday applications. In addition, participants will learn about three ways to rate resistors as well as the different ways to mark resistors. | 1 | Intermediate |
| Series Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. In this course, you will learn about the fundamentals of series circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Series-Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. Components connected in parallel are connected so the same voltage is applied to each component. In this course, you will learn about the fundamentals of series and parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Single-Phase AC Induction Motor Maintenance | Most single-phase alternating current (AC) motors are small-horsepower motors designed to operate on standard single-phase AC current. They are found in a number of home and industrial tools, including vacuum cleaners, can openers, power saws, drills, and fans. Electrical maintenance personnel are responsible for keeping the single-phase motors in their plant in top operating condition and for repairing them correctly and quickly if the need arises. This course explains how single-phase AC induction motors operate and how they are classified. It also covers some common procedures for testing and maintaining them. | 1 | Intermediate |
| Sources of Electricity, Part 1 | Sources of electricity typically refer to the different types of fuel or power used to generate electricity. With the exception of solar power, these sources all involve spinning a copper wire between magnets. This course describes how electricity is produced through electrochemical production, magnetic induction, and the photoelectric effect. | 1 | Intermediate |

VectorSolutions™

# Electrical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Synchronous Motor and Controller Maintenance | Synchronous Motor Maintenance Power factor correction; Constant Speed under varying load; High efficiency; High torque at low speeds; Low Maintenance; Performance stability and Compatibility with Variable Speed Drives are among the many reasons for the popularity of Synchronous Motor Applications throughout industry. Like all manufactured products, however, Synchronous motor systems must be monitored and maintained or the performance benefits will diminish or disappear. This lesson focuses on the routine maintenance requirements for Synchronous motors and their controllers. | 1 | Intermediate |
| Three-Phase AC Induction Motor Maintenance | This course covers three-phase alternating current (AC) induction motors, which use magnetic induction to convert three-phase AC power into mechanical energy. They are used throughout industry to drive equipment such as conveyor belts, pumps, air compressors, and generators. Three-phase AC induction motors are economical, efficient, and reliable. But, although they are reliable, they may still break down. Electrical maintenance personnel are responsible for maintaining the three-phase induction motors in their plant and for fixing any AC motors that have broken down. | 1 | Intermediate |
| Transformer Maintenance | This course is intended to provide participants with a basic background in transformer theory and connection schemes as well as an overview of the most common transformer types and the typical maintenance and testing procedures that apply to them. | 1 | Intermediate |
| Transformers | Substations and switchyards contain various types of transformers. Among them are power transformers, current transformers, and potential transformers. Each of these types of transformers has unique features that distinguish it from the other types of transformers and from other substation and switchyard equipment. In this course, you will learn about these transformers as well as their connections and basic principles. | 1 | Intermediate |
| Transformers, Breakers, and Switches | This course is designed to familiarize participants with basic concepts associated with the operation of transformers, circuit breakers, and various types of switches. After completing this course, participants should be able to explain the basic principles of transformer operation, identify some of the basic components of a transformer, and describe checks that are generally made during a transformer inspection. They should also be able to describe the general operation of a circuit breaker, explain how to reset a tripped circuit breaker and how to rack out a circuit breaker, and describe the basic operation of pushbutton switches and rotary switches. | 1 | Intermediate |
| Troubleshooting Systems and Circuits | Electrical problems may show up anywhere at any time. Some problems are as simple as an abnormal signal value that can be corrected by a minor adjustment. Other problems are not as easy to identify and correct, especially when the cause of the problem is in a non-electrical component or in another system. Regardless of the cause, electricians are responsible for zeroing in on problems whenever they occur and bringing things back to normal. A good way to ensure that the proper actions are taken in response to an electrical problem is to follow a troubleshooting procedure that is both systematic and logical. This course describes the basics of troubleshooting, general guidelines and action steps, and a seven-step troubleshooting method for solving problems. | 1 | Intermediate |
| Use of Ohm's and Kirchhoff's Laws in DC Circuits | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that commonly is referred to as Ohm's law. Ohm's law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. The letter I is used to represent current, E represents voltage, and R represents resistance. Using these symbols, Ohm's law can be expressed as I=E/R. Kirchhoff's two laws also reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. In this course, participants will learn how to use these laws when working with direct current (DC) circuits. | 1 | Intermediate |
| Using Electrical Test Equipment | Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be "qualified." A person who does not meet this requirement should work under the direct supervision of a qualified person. This interactive online course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. | 1 | Intermediate |
| Variable Speed Drives: Common Applications | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. In addition, the motor and controller combination, the drive, is frequently integrated into an existing production process or system. This course will examine some of the common applications for VSDs. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 1 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 2 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Installation | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. This course will examine a typical VSD installation, how to get it running, and how to keep it running while making its operation and maintenance as trouble-free as possible. | 1 | Intermediate |
| Variable Speed Drives: Introduction to VSDs | Variable speed drives (VSDs) are used throughout the industry to electronically regulate the speed and the torque of motors. With nearly half the energy in the world consumed by rotating machinery, the applications for VSDs are enormous, and their use is spreading rapidly. When applied and installed properly and when operated and maintained correctly, VSDs can substantially reduce the power required for the work being done and can provide the precision control that is now demanded by modern industry throughout the world. | 1 | Intermediate |
| Variable Speed Drives: Programming AC Controllers | This course describes alternating current (AC) controller setup procedures, AC controller frequency options and other parameter settings, and AC controller I/O configuration. The course illustrates how to interpret AC controller fault monitoring, alarms, and diagnostics. Finally, the course explains flux vector programming. | 1 | Intermediate |
| Variable Speed Drives: Programming DC Controllers | Wherever variable speed drives (VSDs) are used, they must be programmed to meet the needs of the specific application. Sometimes this means little more than firing them up and letting them run, maybe just punching the drive up to the required speed. But more often it means a variety of settings must be programmed into the drive. This course will focus on programming the controllers for variable speed direct current (DC) motors. | 1 | Intermediate |

| Electrical Maintenance (Continued) | | | |
|---|---|---|---|
| **Title** | **Description** | **Hours** | **Level** |
| Variable Speed Drives: System Troubleshooting, Part 1 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 2 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: Systems and Integration | When variable speed drives (VSDs) are used in industrial applications, they usually are not used by themselves. Although single motors and single controllers are sometimes used in isolated applications, the more usual application is one in which many motors and many controllers are interlinked into a larger automated system that includes many types of processes. This course will examine the ways in which VSDs and automated systems are linked together. | 1 | Intermediate |

# Mechanical Maintenance

| Title | Description | Hours | Level |
|---|---|---|---|
| Applied Vibration Analysis: Analyzing Bearing Vibrations | In this interactive online course you will apply the analysis process to diagnose developing bearing problems. We almost have to start with bearings for one very simple reason. Every piece of equipment we'll analyze - pumps, gearboxes, and all the rest will have at least one bearing somewhere in or near them. Diagnosing bearing problems in different types of equipment will be a fundamental part of your work as a vibration analyst. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Fan Vibrations | For many manufacturing plants, process industries, and utilities fan maintenance is a way of life. In this interactive online course we'll apply the vibration analysis process to diagnose developing fan problems. And there are two types of fans we'll examine. First the overhung type, in which the fan element or blade assembly is mounted on the end of a rotating shaft. And second, the center hung type, in which the shaft extends through the element and is supported on both sides. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Gear Vibrations | Analyzing vibration really means interpreting vibration, and nowhere is this point better illustrated than in the analysis of gear boxes. They are literally sealed metal boxes but, with modern equipment, an experienced vibration analyst can almost peer inside the box and evaluate the condition of internal components. That's what we'll do in this interactive online course - apply the analysis process to diagnose developing gear box problems. To help get you there we'll show you how to diagnose a gear mesh problem in a single reduction gear box, a gear mesh problem in a double reduction gear box, a bearing problem in a double reduction gear box and some other common gear problem signatures. | 0.5 | Fundamental |
| Applied Vibration Analysis: Analyzing Motor Vibrations | Analyzing motor vibrations should be easy enough - right? After all, the only moving part is the shaft and rotor assembly. Most component equipment: gear boxes, fans, and pumps are most often driven by electric motors. In this course we'll apply the analysis process to diagnose most developing motor problems. Our case histories will be taken from 2 types of motors: DC motors and AC induction motors. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Pump Vibrations | It's hard to imagine an industrial facility of any size without at least one pump. In this interactive online course we'll apply the analysis process, which is basic to vibration analysis, to diagnose developing pump problems. Also, we'll learn about an additional analysis tool - Trend analysis. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Spectral Data | Do you know the process and procedure for analyzing vibration spectral data? In this interactive online course, we present a critical phase in your applied vibration analysis training. Remember that the goal of this series of courses is for you to learn to diagnosis developing equipment problems by analyzing the vibration spectrum. In this course, you'll learn a 6-step process for analyzing spectral data. This may be the most important course in the series. | 0.5 | Intermediate |
| Applied Vibration Analysis: Collecting Spectral Data | The job of the vibration analyst can be broken into two primary functions, collecting spectral data and analyzing spectral data. In this interactive online course you'll learn to collect spectral data safely, accurately, and consistently. Everything begins with the data you collect, only it probably won't be just you. Any number of people might collect data, so consistent procedures and sound fundamentals are essential. To help you develop them we'll offer some basic guidance for establishing a database. We'll review some common transducer or probe designs and discuss selecting the right transducer for your equipment. We'll recommend some safety practices that should become second nature to you. We'll identify good work practices for collecting data. And we'll evaluate the amplitude of vibration when you find it. | 0.5 | Intermediate |
| Applied Vibration Analysis: Introduction | When you get complaints about vibration in a piece of equipment - do you know what to do? In this interactive online course, you will be introduced to the principles of machine vibration. We'll examine what machine vibration is. We'll define some common terms associated with vibration and identify the causes of vibration in different types of machinery, primarily machines with rotating components. We'll also look at some instruments used to detect vibration. In addition you will receive some guidelines to follow when collecting vibration data. | 1 | Intermediate |
| ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality | "ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance.<br>This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55)." | 1 | Fundamental |
| ASHRAE Essentials: 55-2017 – Thermal Environmental Conditions for Human Occupancy | This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners. | 1 | Fundamental |
| ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings | "This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners." | 1 | Fundamental |
| Asset Condition Management: Alignment and Balancing Training | "Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures." | 1 | Intermediate |
| Asset Condition Management: Motor Testing | "Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors." | 1 | Intermediate |

VectorSolutions™

# Mechanical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Asset Condition Management: Setting Up an Oil Analysis Program | "Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel. " | 0.5 | Intermediate |
| Asset Condition Management: Vibration Analysis Training | "Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring." | 1 | Intermediate |
| Bearings Basics | Bearings are machine parts in which other parts turn or slide. Almost every piece of moving machinery in an industrial facility uses bearings. This course describes the different types of bearings, their functions, and corresponding maintenance procedures. | 1 | Intermediate |
| Belt Drive Adjustment | The primary function of all belt drives is the transmission of power from a source, such as an engine or electric motor, to a variety of devices. Improper tension and misalignment are the main problems that cause belts to fail. Both of these can be prevented with regular inspections, and basic knowledge of how to adjust tension and alignment. This course will describe safety measures for working with belts and drives, how to prevent common belt problems, how to inspect a belt, as well as how to remove and replace belts. | 0.25 | Intermediate |
| Belt Drive Basics | Belt drives are known as flexible machine elements. This type of element has the advantage of being able to absorb significant amounts of shock and vibration. The primary function of all belt drives is the transmission of power from a source, such as an engine or electric motor, to a variety of devices. This course will discuss advantages and disadvantages of belt drives, belt types, common belt problems, and proper belt handling. | 0.25 | Intermediate |
| Building Air Systems | A building air system provides a controlled environment for personnel working in the building and provides the needed air adjustments. This is done by using exhaust and air makeup to control contaminates and preserve the building structure. This course describes the purpose of building air systems, makeup and exhaust air systems, conditioning methods, and air balance. | 0.25 | Intermediate |
| Centrifugal Compressors | This course is designed as a reference tool that participants can use to refresh their understanding of centrifugal compressor components and operation. This course also covers the disassembly and reassembly of a vertically split compressor and the various checks and measurements that are made to compressor components. | 1 | Intermediate |
| Centrifugal Pump Components | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Centrifugal pumps convert external rotational mechanical energy into kinetic energy within a liquid. In a centrifugal pump, this is done by accelerating the liquid from the center to the outer rim of a spinning impeller within a pump casing. This course covers the terminology and function of the mechanical components that make up a typical centrifugal pump. | 0.5 | Intermediate |
| Centrifugal Pump Curves and Theory | A centrifugal pump is a dynamic machine that has performance characteristics which are partially determined by the environment in which it is operating. One of the best ways to display and study the capabilities of a given pump is with a graph called a pump performance curve. A pump performance curve is actually a set of curves showing a number of parameters versus flowrate. Pump curves can be combined with hydraulic requirements, or system curve, to determine the suitability of a pump for a given task. | 0.5 | Intermediate |
| Centrifugal Pump Fluid Mechanics | Pumps convert rotational kinetic energy, such as that supplied by an electric motor, into hydrodynamic energy, or an increased pressure in a fluid required to make it flow. In order to make a fluid flow, energy, or pressure must be supplied to overcome two fundamental obstacles to flow. One obstacle is created when the elevation of a fluid is increased. The second is presented by the need to overcome the internal resistance of a fluid to flow. This course focuses on how these basic hydraulic concepts apply to piping system evaluation and pumping requirements. | 0.5 | Intermediate |
| Centrifugal Pump Operations and Maintenance | Pump operations and pump maintenance are two closely interrelated topics. Poor mechanical pump maintenance will lead to a loss of hydraulic performance and what may appear to be operational problems. Operational decisions which cause the pump to operate outside of its preferred operation region can lead to physical pump damage which could be misinterpreted as a traditional maintenance issue. It is important to determine the root cause of a problem. This course will cover methods for monitoring pump hydraulic operation and methods for observing and maintaining the mechanical condition of a pump. | 0.5 | Intermediate |
| Centrifugal Pump Selection and Sizing | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Pumps have been developed to specifically address a wide range of applications. Selecting the correct pump for a given job can be a daunting proposition. Some pump classifications are based on their hydrodynamic characteristics, some are based on mechanical construction and some are based on compliance with industry standards. In this course, we will help you understand these different classifications and present some of the strengths and weaknesses of the different designs. | 0.5 | Intermediate |
| Centrifugal Pump System Components and Design | The purpose of a pump is to increase the pressure of a liquid and transfer it from one location to another. Although a pump is essential to this goal, it is only one element of a larger system that is required to accomplish liquid transfer. This course will cover some of the mechanical components such as drivers and couplings that support pump operation. It will also cover how the design of a piping system around a pump will affect pump selection and performance. | 0.5 | Intermediate |
| Centrifugal Pumps | "Pumps are used to move liquids from one place to another by increasing the mechanical energy of the liquid. The energy can be used to raise the liquid to a higher elevation or to increase its velocity or pressure. In a centrifugal pump this is accomplished by rotating an impeller which creates centrifugal force that transfers energy to the liquid. This module focuses on pumping principles and operation guidelines for typical centrifugal pumps. " | 0.5 | Intermediate |
| Chain Drive Basics | A chain drive is a system that includes two or more sprockets and a chain. One sprocket is driven, and its teeth mesh with the gaps in the links of the chain. When the sprocket is turned, it catches the chain, and transfers the force of the input to the rest of the system. The purpose of a chain drive is to transmit power from one place to another. This course covers the common components of chain drives as well as several procedures that can be performed to optimize chain drive performance. | 0.5 | Intermediate |
| Compressed Air Fundamentals | Prepare yourself and your team to work safely with and around compressed air systems. Use this course to get a better understanding of the benefits and uses of compressed air. This course discusses the types of compressors (reciprocating, rotary screw, and centrifugal), the relationship between pressure, temperature and volume, gauge vs. absolute pressure, and air quality considerations. Additional topics include air cooling and drying as well as managing airborne, oil, and moisture contamination. | 0.5 | Intermediate |
| Compressed Air Systems | Compressed air systems are used in a variety of industries to supply process requirements, operate pneumatic tools and equipment, and to meet instrumentation needs. This course discusses compressed air system components, safety guidelines to follow while working with and around compressed air systems, common air compressor designs, compressed air conditioning systems, and air pressure and volume measurements. | 0.25 | Intermediate |

# Mechanical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Compressors and Pneumatic Tools | The purpose of this course is to teach the basic operating principles and general operating procedures for air compressors and the following pneumatic tools: jackhammers, tamps, pumps, circular air saws, and duct blowing rigs. The course shows how to use the tools efficiently for several construction and maintenance jobs. Emphasis is placed on the important safety precautions associated with using these tools. At the conclusion of this course, participants should have a basic understanding of how to operate an air compressor. They should also know how to use pneumatic tools safely and efficiently on a job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Compressors: Centrifugal and Axial | This course is designed to familiarize participants with basic concepts associated with the parts and operation of centrifugal and axial compressors. After completing this course, participants should be able to describe the main parts and the general operation of single-stage centrifugal compressors, multistage centrifugal compressors, and axial compressors. They should be able to describe the functions of compressor lubrication systems, seals, bearings, and common auxiliary devices. | 2 | Intermediate |
| Compressors: Operation of Centrifugal and Axial Types | This course is designed to familiarize participants with basic concepts associated with the startup, operation, and shutdown of centrifugal and axial compressors. After completing this course, participants should be able to describe the general functions of instrumentation and control devices used with centrifugal and axial compressors. They should be able to describe operator responsibilities associated with starting up, operating, and shutting down centrifugal and axial compressors. | 2 | Intermediate |
| Compressors: Positive Displacement | This course is designed to familiarize participants with basic concepts associated with the operation of positive displacement compressors. After completing this course, participants should be able to identify the main parts and describe the general operation of various types of reciprocating compressors and rotary compressors. They should also be able to describe operator responsibilities associated with starting up, operating, and shutting down compressors. | 2 | Intermediate |
| Condensate Recovery and Steam Traps | Whenever steam condenses in a process, it creates hot liquid condensate. It is the role of steam traps to remove condensate from steam lines and process equipment with a minimum loss of live steam. The condensate has economic value, so it is typically collected and reused. This module discusses the collection and re-use of condensate in a steam generation system. Three major classifications of steam traps are discussed, including their principles of operation, and their strengths and weaknesses. | 0.5 | Intermediate |
| Conveyor Belt Replacement | Belt conveyors are used in manufacturing and industrial environments to move materials from one location to another. Conveyors can reduce workloads and make production more efficient. They can also prevent injuries that result from carrying materials manually. After time however, they become worn and must be replaced. This course will discuss the steps necessary to remove and replace conveyor belts. | 0.25 | Intermediate |
| Conveyor Types and Components | Hundreds of conveyor types are used in manufacturing and industrial environments to move materials from one location to another. Conveyors can reduce workloads and make production more efficient. They can also prevent injuries that result from carrying materials manually. Different material handling systems require different conveyor types to move products or raw materials effectively. This module will discuss common components of conveyors as well as specific conveyor types and their uses. | 0.25 | Intermediate |
| Delivery Truck Maintenance | "Many businesses depend heavily on their fleet of vehicles. In some businesses, such as package or propane delivery, or taxis, the fleet really is the business. In other cases, such as trades like electricians and plumbers, the vehicle is somewhat secondary to the actual job being performed, but no less important. In order for businesses which rely on vehicles to thrive, those vehicles which make up the fleet need to be able to operate safely and properly as close to 100% of the time as possible." | 0.5 | Intermediate |
| Efficient Pump Operation | This course is designed to teach participants how pumps in generating units can be operated efficiently. After completing this course, participants should be familiar with pump operating characteristics such as capacity, head, power, efficiency, and minimum net positive suction head. They should understand how these characteristics can be plotted and read on pump curves, and how pump curves can be used. In addition, they should be able to describe the effects of multiple pump operation and low flow on pump efficiency. | 1 | Intermediate |
| Equipment Drive Components: Gear, Belt, and Chain Drives | This course is designed to familiarize participants with basic concepts associated with the operation of gear drives, belt drives, and chain drives. After completing this course, participants should be able to describe the general function of gear drives, belt drives, and chain drives, and explain how each of these equipment drive components operates to transfer power from a driver to a piece of driven equipment. They should also be able to describe operator checks that are commonly performed on gear drives, belt drives, and chain drives. | 2 | Intermediate |
| Equipment Lubrication: Using Lubricants | This course is designed to familiarize participants with some of the methods and devices used to lubricate equipment components such as bearings. After completing this course, participants should be able to describe the use of hand grease guns, pneumatic grease guns, grease cups, and centralized lubricators. They should also be able to describe the basic operation of drip-feed oilers, oil baths, bottle oilers, ring oilers, and circulating oil systems. In addition, participants should be able to describe the use of contact seals, labyrinth seals, and mechanical seals, and to describe how valve packing is lubricated. | 2 | Intermediate |
| Fans | Many processes and systems in an industrial facility require the movement of air or other gases. Air movement is important in applications such as heating and cooling, pollution control, combustion, and ventilation. One of the most common ways to move air and other gases in a controlled manner is with fans. This course identifies the major components of fans and describes the operation of various types of fans. The operator's role in keeping fans working properly is also examined. | 1 | Intermediate |
| Gear Drive Basics | Gears are mechanical devices, designed with teeth specifically shaped to minimize wear, vibration, and noise, while also maximizing a power transmission's efficiency. They are able to reverse the direction of rotation, change the speed of rotation, and transfer rotation to a different axis. This course will describe the purpose, types, performance, and applications of gears. | 0.25 | Intermediate |
| Gears - Overhaul | The purpose of this course is to provide participants with an overview of gearbox disassembly and reassembly. Replacing damaged gearbox components is an important part of a maintenance technician's job. Understanding how to safely and properly disassemble and reassemble a gearbox is essential to any gearbox repair or overhaul. At the completion of this course, participants will be able to describe checks, measurements, and installation procedures for gearboxes. | 1 | Intermediate |
| Gears - Types and Characteristics | Gears are found in many types of equipment in industrial facilities. They are vital components, and a gear problem can cause a whole operation to come to a complete stop. This course covers what gears are, how they work, and different types found within industry. It also provides an overview of problems that may affect gears and how to prevent them. | 1 | Intermediate |
| Heat Exchanger Basics | Heat exchangers are typically used to transfer heat between fluids using conduction, convection, and radiation. This course details the three heat transferring methods used by heat exchangers as well as how heat exchangers are classified. It also illustrates common heat exchangers types such as shell-and-tube, plate, extended surface, and regenerative heat exchangers. | 0.25 | Intermediate |
| Heat Exchangers: Condensers and Reboilers | There are many different types of shell-and-tube heat exchangers, and each one is designed to accomplish a specific function in a process. In this interactive, online course, you will explore condensers and reboilers, two shell-and-tube heat exchangers that are designed to do specific jobs. | 0.5 | Intermediate |

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# Mechanical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Heat Exchangers: Cooling Towers | "In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons, it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower." | 0.5 | Intermediate |
| Heat Exchangers: Operation of Shell and Tube Types | "Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger. " | 0.5 | Intermediate |
| HVAC - Heating and Cooling | HVAC systems are used to maintain clean, conditioned air in enclosed spaces. The term "conditioned" refers to the fact that the temperature and humidity of the air are maintained within desired ranges. This module describes the two most common cooling systems as well as heating devices used in HVAC systems. | 0.5 | Intermediate |
| HVAC - Hot Water and Ventilation | The purpose of heating, ventilation, and air conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial, and industrial facilities. This module contains information on hot water heating systems, air distribution systems, and HVAC control systems. | 0.5 | Intermediate |
| HVAC Basics | The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and allow temperature- or humidity- sensitive equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This module will identify safe work practices to use when working around HVAC systems and the most common HVAC system components. | 0.25 | Intermediate |
| HVACR Type I Certification | Type I certification requires that technicians know how to safely and properly evacuate refrigerants from "small appliances" containing 5 pounds or less of refrigerant using the appliance's compressor, system pressure, or self-contained recovery equipment. This interactive online course will cover these evacuation procedures, as well as how to deal with contaminants in a system and safety considerations. | 0.5 | Intermediate |
| HVACR Type II Certification | Did you know HVAC and Refrigeration technicians who maintain, service, repair, or dispose of medium, high, and very high pressure appliances containing more than five pounds of a controlled refrigerant must pass the EPA's Section 608 Type II certification exam? Type II certification requires that technicians understand several topics related to these systems, including leak detection, leak repair, evacuation requirements, recovery techniques, refrigeration, and safety. This interactive online course will cover the appliances included in the EPA Section 608 Type II certification exam, explain the techniques that are used to recover refrigerants, list evacuation requirements, and cover safety considerations for working with or around refrigerants, recovery equipment, and HVAC and Refrigeration systems | 0.5 | Intermediate |
| HVACR Type III Certification | Did you know Type III appliances differ from Type II appliances in that they operate in a vacuum on their low-pressure sides and sometimes on their high-pressure sides, which affects what happens when they develop a leak? When a Type III appliance develops a leak in a location that is under vacuum, air and/or moisture leaks in. In this interactive online course, we will cover the EPA 608 Type III certification exam, the techniques that are used to recover refrigerant, evacuation requirements and safety considerations for working with or around refrigerants. | 0.5 | Intermediate |
| Hydraulic System Basics | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course is an introduction to hydraulic systems and their uses. It covers hydraulic theory, common components, what mechanical advantage is, and how hydraulic fluid is contaminated. | 0.25 | Intermediate |
| Hydraulic System Equipment | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course covers the purpose and function of the major equipment used in a typical hydraulic system. | 0.25 | Intermediate |
| Hydraulic System Valves and Components | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course covers the purpose and function of the valves and various components used in a typical hydraulic system to control pressure, transmit fluid, and filter contaminants. | 0.25 | Intermediate |
| Hydraulics: Actuators | This course is designed to familiarize participants with the various types of actuators that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of single-acting cylinders, double-acting cylinders, vane motors, gear motors, piston motors, and partial rotation actuators. | 2 | Intermediate |
| Hydraulics: Component Inspection and Replacement | This course is designed to familiarize participants with typical procedures for removing, inspecting, reassembling, and reinstalling hydraulic system components. After completing this course, participants should be able to describe how to remove, inspect, reassemble, and reinstall hydraulic valves, pumps, and cylinders. | 2 | Intermediate |
| Hydraulics: Diagrams | This course is designed to familiarize participants with hydraulic system schematic diagrams. After completing this course, participants should be able to interpret symbols that are used on hydraulic system schematic diagrams and use schematic diagrams to trace fluid flow through various types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Fluid and Reservoirs | This course is designed to familiarize participants with the fluid used in hydraulic systems and with the basic functions and uses of filters and strainers, reservoirs, conductors, and accumulators. After completing this course, participants should be able to describe the functions, characteristics, and types of fluid that may be used in hydraulic systems. They should also be able to describe typical uses of filters and strainers, describe the components and accessories of typical reservoirs, describe various types of conductors and fittings, and describe the basic functions and common uses of accumulators in hydraulic systems. | 2 | Intermediate |
| Hydraulics: Principles and Circuits | This course is designed to familiarize participants with the principles of hydraulic system operation and with the components and operation of some typical hydraulic circuits. After completing this course, participants should be able to explain how force is transmitted through a liquid and how pressure and flow are related in a hydraulic system. They should also be able to describe the main components and basic operation of several types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Pumps | This course is designed to familiarize participants with the various types of pumps that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of gear pumps, vane pumps, and piston pumps. | 2 | Intermediate |
| Hydraulics: Routine Maintenance | This course is designed to familiarize participants with tasks associated with the routine maintenance of hydraulic systems. After completing this course, participants should be able to describe general considerations associated with routine maintenance. They should also be able to describe procedures for performing external inspections and for maintaining some system components. | 2 | Intermediate |
| Hydraulics: Troubleshooting | This course is designed to familiarize participants with general steps for analyzing problems in hydraulic systems. After completing this course, participants should be able to explain how to identify problems in hydraulic systems and describe common problems associated with hydraulic system components. | 2 | Intermediate |

# Mechanical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hydraulics: Valves, Part 1 | This course is designed to familiarize participants with the basic design and operation of various types of valves used in hydraulic systems. After completing this course, participants should be able to describe the functions of flow and pressure in a hydraulic system; and identify and describe various types of manually adjusted valves, sliding spool valves, and spring-biased valves. They should also be able to describe various ways in which valves can be actuated. | 2 | Intermediate |
| Hydraulics: Valves, Part 2 | This course is designed to familiarize participants with the functions performed by various types of valves used in hydraulic systems. After completing this course, participants should be able to describe how valves control flow rate, flow direction, and pressure in a hydraulic system. They should be able to describe the basic operation of a pressure-compensated flow control valve, a temperature-compensated flow control valve, various types of flow control circuits, a pressure reducing valve, a relief valve, a sequence valve, and a counterbalance valve. | 2 | Intermediate |
| Industrial Pneumatic Technology: Aftercoolers, Driers, and Receivers | "Air compressors are used in industry to store compressed air or inert gases, which can then be used to power air motors, cylinders, and other pneumatic devices. Clean, dry air is essential for pneumatic systems to function properly, so it is important to remove moisture and contaminants to ensure optimum performance of the system.<br>In this interactive online course, we will identify some components of air compressors, including aftercoolers, dryers, receivers, and air distribution systems." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Air Preparation | "Pneumatic components and systems require compressed air that is free of contamination. No matter how well a system is designed, if contaminated air gets into the components, it can interfere with proper circuit operation.<br>In this interactive, online course, we will cover the types of contaminants that can be found in the air used in pneumatic systems and identify ways to clean it up." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Check Valves, Cylinders, and Motors | Selecting the right cylinders, check valves, and motors in pneumatic applications involves more than just picking them off the shelf. In this interactive online course, we will cover check valves and two types of pneumatic actuators: cylinders and motors. We will discuss the functions of each in a pneumatic system. We will also cover formulas used in sizing cylinders, cylinder volume, compression ratio, and more. | 1 | Intermediate |
| Industrial Pneumatic Technology: Compressors | In order to accomplish useful work with a pneumatic system, we need a device that can supply a sufficient amount of air at a desired pressure. The device that performs this function is called a compressor. In this interactive online course we will describe the principles of air compressor operation and give you details about the types of positive displacement and dynamic air compressors. We will instruct you in identifying compressor capacity and we'll give you parameters for selecting a compressor system. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Control of Pneumatic Energy | First off, energy that is transmitted through a pneumatic system must be directed and under complete control at all times. If it isn't, useful work may not be done, and machinery or machine operators could be harmed. In this interactive online course you will learn the basics of the pneumatic system, its operation, and its control. You will see diagrams of the components and get explanations for how the various parts work together. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Directional Control Valves | A directional control valve is an essential component that enables flow into different paths from different sources in hydraulic and pneumatic machinery. This fundamental part controls the stop, start and direction of flow. In this interactive, online course we will cover the different types of directional control valves and explain the methods used to classify these valves. We will discuss the use of poppet valves, and identify the different types of shear action valves. Lastly, we will discuss replacing valves and correct sizing for flow rate. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Energy Transmission | Do you know how compressors are used? Were you aware that gas is actually a fluid? In this interactive online course we will discuss the basics of gases and pressure. We will also discuss compressors and how pressure is measured. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Excess Flow Valves, Boosters, and Sequence Valves | How much do you know about Pneumatics? In this online, interactive course we'll be examining a few pneumatic components and showing how they can be used in some basic circuits. We'll begin with a definition and move through descriptions of the components and circuits. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Flow Control Valves, Silencers, and Quick Exhausts | "Flow control valves used in pneumatic circuits affect actuator speed. Understanding how flow control valves operate will allow you to increase or decrease flow rate to meet the needs of your pneumatic circuits.<br>This interactive online course will teach you about several types of adjustable flow control valves available. You will learn how flow control valves operate by reviewing different pneumatic circuit examples. Additionally, you will learn how an orifice is used to control flow rate. You will also learn about special purpose devices used in pneumatic circuits." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Force Transmission | "Pneumatic systems work because of a special property of fluids and the way these fluids transmit force and pressure. Understanding how fluids transmit energy will allow you to maintain your pneumatic control systems at desired operating conditions. This interactive online course will teach you about the different sources of pneumatic energy along with how force is carried through gases and liquids. Additionally, you will learn ways compressed air is used in pneumatic systems. You will also learn about calculation methods for determining how much pressure is generated in gases." | 0.5 | Intermediate |
| Lubricants and Oils | When two moving solid surfaces interact, material from those surfaces can be lost. This loss of material is known as "wear." Wear on equipment can shorten the lifespan of machines, disrupt production, and result in product loss. Lubrication is the process of using substances called lubricants to reduce wear. This course covers what lubricants are, what they are made of, and common types of lubricants. This course also illustrates the differences between common lubricating methods as well as safe storage and handling requirements. | 0.5 | Intermediate |
| Lubrication Basics | Whenever two moving, solid surfaces contact each other, there is friction which creates heat and leads to destructive wear. Lubrication is the process of introducing a lubricant substance between the surfaces in order to reduce that friction and wear. A lubricant can be a solid such as molybdenum disulfide or Teflon; a semi-solid, such as grease; a liquid, such as oil; or even a gas such as air. This module will focus primarily on the industrial uses of liquid oils and grease as lubricants. | 0.5 | Intermediate |

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# Mechanical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mechanical Maintenance: Basic Terms of Maintenance | "This interactive online course teaches you about the basic terms commonly used in industry. You will learn definitions for concepts, including measurements of energy, temperature, and loading limits. You will also learn about common industrial processes, and examine some of the components used in these processes. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance, Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers, Mechanical Maintenance: Maintaining V-Belts, Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain, Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts, Mechanical Maintenance: Couplings, Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches " | 0.5 | Intermediate |
| Mechanical Maintenance: Couplings | This interactive online course addresses how different couplings attach to shafts. You will learn factors that can increase wear and the lifespan of a coupling, and the applications of different coupling types. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | This interactive online course addresses how breaks and clutches work, conditions that can cause breaks and clutches to fail, and brake and clutch maintenance to better prevent premature wear. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers | When the normal operating speed of a motor is different from that required for an application, speed reducers, frequently called gear boxes or gear reducers, are often used to lower the speed. This interactive online course will teach you about the basic parts that all reducers have in common. You will learn common problems that go wrong with reducers and how to spot them early, before they become serious. You will also learn how to maximize the efficiency of reducers you work with and how to get them running again when things go wrong. You will also be taught what to look for during an overhaul. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts | Transmission drives rely on belts to transfer power. No belt lasts forever, but by following the guidelines discussed in this course, unexpected equipment downtime can be minimized. This interactive online course will teach you about three types of belt driven power transmission drives, flat belts, V-belts and timing belts. You will learn how each belt works, how they're constructed, and taught the importance of proper installation and maintenance. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain | "This interactive online course teaches you about two kinds of power transmission drives, those using roller chain and those using silent chain. You will learn about how they are constructed and how they work. You will also learn about some of the most common reasons why they fail. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance, Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers, Mechanical Maintenance: Maintaining V-Belts, Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain, Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts, Mechanical Maintenance: Couplings, Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches " | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining V-Belts | "Do you know the best ways to troubleshoot and maintain V-belts? This interactive online course teaches you about the basics of maintaining V-belts. You will learn how to describe V-belt types, explain proper V-belt installation, identify problems with V-belts, and discuss V-belt replacement. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance, Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers, Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain, Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts, Mechanical Maintenance: Couplings, Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches " | 0.5 | Intermediate |
| Mechanical Seals | The purpose of this course is to provide participants with a general understanding of mechanical seals and mechanical seal installation. At the completion of this course, participants will be able to describe the components and operation of the different types of mechanical seals as well as procedures for seal removal and installation. | 1 | Intermediate |
| Multistage Centrifugal Pump Maintenance | Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A singlestage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered. | 1 | Intermediate |
| Multistage Centrifugal Pumps | A centrifugal pump converts external rotational mechanical energy into kinetic energy within a liquid. In the most common design of the centrifugal pump, a single impeller spins within a case called a volute. There is an economical limit to the pressure increase that can be achieved with a single impeller. Placing multiple impeller-and-volute stages in a case creates a single centrifugal pump unit capable of continuously delivering much higher discharge pressures than can be created by a single stage pump. This type of pump is called a multistage centrifugal pump. This course discusses some of the mechanical considerations and different designs of multistage centrifugal pumps. | 0.25 | Intermediate |
| Pipes and Valves: Basic Pipefitting Skills | Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square. | 2 | Intermediate |

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# Mechanical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pipes and Valves: Calculating Offsets | Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets. | 2 | Intermediate |
| Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe | Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method. | 2 | Intermediate |
| Pipes and Valves: Installing Pipe Hangers and Supports | Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors. | 2 | Intermediate |
| Pipes and Valves: Installing Screw and Welded Pipe | Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping. | 2 | Intermediate |
| Pipes and Valves: Pipes and Pipe Fittings | This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe. | 2 | Intermediate |
| Pipes and Valves: Special Calculations | Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures. | 2 | Intermediate |
| Pipes and Valves: Valve Maintenance | This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it. | 2 | Intermediate |
| Pipes and Valves: Valve Types and Operation | This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated. | 2 | Intermediate |
| Piping and Auxiliaries: Basic Components and Functions | This course is designed to familiarize participants with some of the basic components commonly found in piping systems. After completing this course, participants should be able to state the purpose of piping and pipe fittings and describe some common types of pipe fittings. They should also be able to describe devices that are used to accommodate the weight and movement of piping, and they should be able to explain how insulation and heat tracing help to control temperatures in piping systems. | 2 | Intermediate |
| Piping and Auxiliaries: System Components and Operation | This course is designed to familiarize participants with some of the auxiliary components commonly found in piping systems. After completing this course, participants should be able to describe the function and operation of rupture discs, relief valves, safety valves, and some common types of steam traps. They should also be able to describe basic procedures for draining and filling liquid systems, and they should be able to describe some typical operator checks for fluid systems. | 2 | Intermediate |
| Plant Science: Fluid Systems | This course is designed to introduce participants to the characteristics, components, and operation of fluid systems. After completing this course, participants should be able to explain, in general terms, what a plant system is and what a fluid is. They should also be able to explain the basic layout of a liquid system and describe energy conversions in a liquid system. Participants should also be able to describe the basic parts of a compressed air system and the basic operation of several gas and vapor system devices. | 2 | Intermediate |
| Plant Science: Forces and Machines | This course is designed to introduce participants to scientific principles associated with applied forces and the operation of basic machines. After completing this course, participants should be able to define work, power, and efficiency; and explain the mechanical advantage of this inclined plane and the lever. They should also be able to explain the hydraulic principle and the relationship between friction and the operation of machines. | 2 | Intermediate |
| Plant Science: Gases and Flowing Liquids | This course is designed to familiarize participants with basic concepts associated with the properties of gases and flowing liquids. After completing this course, participants should be able to describe the major properties of gases and explain how these properties are related. They should also be able to explain how pressure can be measured and to describe the effects of flow, velocity, and friction on the head pressure of a liquid. | 2 | Intermediate |
| Plant Science: Heat | This interactive training is designed to introduce you to some of the basic principles associated with heat and heat transfer. In this course, we will describe some of the effects of heat, the relationship between temperature and thermal energy, and the Law of Energy Conservation. We will define the terms “sensible heat” and “latent heat.” Also, we will discuss the effects of pressure on the temperature at which a substance undergoes a phase change. | 0.5 | Intermediate |
| Plant Science: Solids and Liquids | This course is designed to familiarize participants with basic scientific principles that relate to solids and liquids. After completing this course, participants should be able to describe the general molecular structure of solids, liquids, and gases. They should also be able to describe specific properties associated with solids and liquids. | 2 | Intermediate |
| Pneumatic Basics | “Pneumatics is defined as ““using pressurized gases to do work.”” Pneumatic systems are based on the controlled use of compressed air as a source of stored potential energy. By controlling how the air is released, the energy can be turned into movement. Pneumatics are used in handheld power tools, automatic doors, and conveyor systems. They are also used in aircraft for landing gear, flaps, and other instruments. The air brakes on buses and trucks are pneumatic, as well as some exercise machines. Typically, pneumatic systems are more flexible, less costly, and more reliable than many other types of electric motors.” | 0.5 | Intermediate |
| Positive Displacement Pump Maintenance Basics | The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures. | 1 | Intermediate |

# Mechanical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Positive Displacement Pumps | A positive displacement pump works by capturing a given volume of liquid at the suction of the pump, and then mechanically forcing it out of the discharge at a higher pressure. In contrast to centrifugal pumps, in which the flow is affected by downstream pressure, positive displacement pumps (within the limitations of the driver) deliver a nearly constant flow, independent of the downstream pressure. Positive displacement pumps can be categorized as reciprocating or rotary action pumps. This course describes the general characteristics of positive displacement pumps and the principles of operation of various common designs. | 0.5 | Intermediate |
| Pump Basics | Pumps are used to add energy to fluids (gases, liquids, or slurries) to produce flow or increase pressure. This course discusses the construction and operation of the two most basic types of pumps: positive displacement and centrifugal. In addition to how pumps function, it is also covers some of the common terms which are used to describe pump performance. | 0.25 | Intermediate |
| Pump Types and Applications | Pumps are used to add energy to fluids (gases, liquids, or slurries) in order to produce flow or increase pressure. They can perform many different functions, including moving a fluid from one location to another, recirculating a fluid in a closed system, such as in a heating or cooling system, and providing pressure, such as in hydraulic systems. These functions are performed primarily by two different types of pumps: centrifugal and positive displacement. This module describes the most common types of pumps and their applications. | 0.25 | Intermediate |
| Pumping Stations - Pumps, Motors and Electrical Systems | "Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations.<br>This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations." | 2 | Fundamental |
| Pumps Introduction | "Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Understanding the basics of fluid mechanics and the operation of different types of pumps is an essential step toward being able to understand, troubleshoot and improve a wide variety of processes.<br>This course includes a brief overview of fluid mechanics as well as the differences between centrifugal and positive displacement pumps, including their operational characteristics and applications." | 0.25 | Intermediate |
| Pumps: Fundamentals of Centrifugal Types | This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system. | 2 | Intermediate |
| Pumps: Multistage Centrifugal | This course is designed to familiarize participants with the basic operation, disassembly, and reassembly of a typical multistage centrifugal pump. After completing this course, participants should be able to describe the components and operation of a multistage centrifugal pump and explain how this kind of pump can be disassembled and reassembled when necessary. | 2 | Intermediate |
| Pumps: Operation of Centrifugal Types | This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump. | 2 | Intermediate |
| Pumps: Performance and Inspection | This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations. | 2 | Intermediate |
| Pumps: Reciprocating Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Pumps: Rotary Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Reciprocating Compressors, Part 1 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Reciprocating Compressors, Part 2 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Refrigerant Safety and Handling | In air conditioning (AC) and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. Refrigerants must be handled and used carefully as many of them present hazards to the environment and human health. This interactive online course discusses safe methods of working with refrigerants and refrigeration systems. | 0.5 | Intermediate |
| Refrigeration - Compressors, Valves and Piping | The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Properties | Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Selection | Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems. | 0.25 | Intermediate |

# Mechanical Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Refrigeration - System Components | There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes. | 0.25 | Intermediate |
| Refrigeration - System Troubleshooting | Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance. | 0.25 | Intermediate |
| Refrigeration - Vapor-Compression Cycle | The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage. | 0.25 | Intermediate |
| Rolling Contact Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Rolling Contact Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Safety Valves | "Safety valves are commonly used in gas and steam systems to relieve excess pressure before it can cause injuries or equipment damage. Safety valves open quickly to release large volumes of gas or steam. This course is divided into two sections. Section 1: Types of Safety Valves, covers the concept of pressure and how it is measured and explores methods of relieving excess pressure through use of a rupture disc systems, relief valve systems, and safety valves. Section 2: Safety Valve Maintenance describes troubleshooting and basic maintenance procedures for a typical safety valve. The section consists of three parts: External Inspection<br>Disassembly and Inspection Reassembly and Testing" | 1 | Intermediate |
| Seals: Gaskets and Packing | The purpose of this course is to examine some ways that leaks in fluid systems are controlled by the use of gaskets, packing, and mechanical seals. At the completion of this course, participants will be able to describe the components and procedures involved in working with gaskets, packing, and mechanical seals. | 1 | Intermediate |
| Shaft Alignment, Part 1 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will the cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment, Part 2 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment: Reverse Dial and Laser | This course is designed to familiarize participants with equipment and procedures for aligning shafts using the reverse dial method and using a laser system. After completing this course, participants should be able to prepare and set up equipment for a reverse dial alignment and for laser-based alignment. They should also be able to measure shaft misalignment and determine how the misalignment should be corrected. Finally, participants should be able to correct shaft misalignment so that the alignment is within specified tolerances. | 2 | Intermediate |
| Shaft Alignment: Rim and Face | This course is designed to familiarize participants with the basic principles associated with measuring and correcting shaft misalignment using the rim and face method. After completing this course, participants should be able to describe the basic types of misalignment, describe general preparations for a rim and face shaft alignment procedure, and explain how to use the rim and face shaft alignment procedure. They should also be able to explain how to use the rim and face method to measure and correct misalignment on horizontally mounted equipment and on vertically mounted equipment. | 2 | Intermediate |
| Sliding Surface Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Sliding Surface Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Valve Basics | Valves are used throughout most industrial work places, but what do you know about them? Given their importance, its surprising that many people don't know what valves do or how they do it. This course offers a solid introduction to many basic concepts related to the valves used in general industry. So whether you're a complete novice, filling some gaps in your knowledge, or just brushing up, Valve Basics has the information you're looking for. | 0.5 | Intermediate |
| Valve Common Problems | Valves are critical in many workplaces, and so it's important to know how to avoid, diagnose, and fix common valve-related problems. This course focuses on flashing, cavitation, choked flow, turbulence, and noise, explaining the causes of each and providing possible solutions. | 0.5 | Intermediate |
| Valve Performance | You may know how valves work, but do you know how to select the right valve for the job based on its performance characteristics? If not, this is the course you've been looking for. Learn all the basic concepts and terms for evaluating a valve, including those for the amount of fluid that can flow through a given valve in a period of time, the distance the valve stem travels from the open to closed position and the relationship between the valve travel distance and the corresponding changes in flow rate. You'll also discover how the performance of a valve can change after its installed in a real system with varying conditions, how well a valve can withstand pressure and prevent leakage, and how control systems can be used to increase the efficiency of valves. | 0.25 | Intermediate |
| Valves: Basic Types and Operation, Part 1 | In most industrial facilities, process systems handle many different types of fluids. The flow of these fluids through plant piping systems is controlled by valves. To keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. In this interactive online course, we will discuss the various uses of valves, their parts, and valve connections. | 0.5 | Intermediate |
| Valves: Basic Types and Operation, Part 2 | The purpose of this course is to provide participants with a general understanding of the basic types and operation of valves. The flow of fluids through plant piping systems is controlled by valves. In order to keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. At the end of this course, participants will have a better understanding of the types, purposes, and applications of various valves. | 1 | Intermediate |
| Valves: Electric and Hydraulic Actuators | This course is designed to introduce participants to various types of electric and hydraulic actuators that are used to control valves in process systems. After completing this course, participants should be able to describe the basic operation of solenoid actuators, motor-operated actuators, and various types of hydraulic actuators. They should also be able to explain the function of a pilot valve and describe problems associated with hydraulic actuators. | 2 | Intermediate |

| Mechanical Maintenance (Continued) | | | |
|---|---|---|---|
| **Title** | **Description** | **Hours** | **Level** |
| **Valves: Introduction to Actuators** | Some of the valves that are used to control the flow of fluids in process systems have to be opened, closed, or throttled frequently. Manually positioning these valves using handwheels or levers is not always practical. Instead of handwheels or levers, actuators are often used to position the valves. This module is designed to introduce participants to actuators in general and pneumatic actors in particular. | 1 | Intermediate |
| **Vehicle Brake Basics** | Brakes are mechanical devices used to slow or stop a moving object, or to prevent the movement of a stationary object. This course discusses the hydraulic braking systems typically installed in modern automobiles and light duty trucks. Similar systems can be used on rotating equipment and machinery. Brake pedal design, vacuum-assisted brake boosters, “master” and “slave” cylinders, emergency brakes, anti-lock brake systems, and the importance of regular inspections and maintenance are all covered. | 0.25 | Intermediate |

# Instrumentation & Control

| Title | Description | Hours | Level |
|---|---|---|---|
| Core: Principles of Calibration | This course is designed to familiarize participants with the basic principles associated with the calibration of input field devices and control loops. After completing this course, participants should be able to explain how to test, adjust, and calibrate various types of gauges and transmitters. They should also be able to explain how to test, set up, and adjust input field devices and calibrate control loops. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: The Human-Machine Interface | This course is designed to familiarize participants with the different types of human-machine interfaces (HMIs) that are likely to be found in a modern plant. After completing this course, participants should be able to obtain process information using typical instruments, operate typical switch controls, use smart I/O devices and controller interfaces, and perform common computer operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Introduction to Control and Data Systems | This course is designed to familiarize participants with the role of information systems in plant operations and the elements of modern information systems. After completing this course, participants should be able to identify the information needs of typical plant functional elements and explain how information gets into an information system. They should also be able to describe system architecture and explain how to use environment software and application software. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Introduction to Process Control | This course is designed to familiarize participants with the basic elements, terminology, and functions of control systems. After completing this course, participants should be able to identify and describe the various types of input and output devices that are commonly used with automated control systems. They should also be able to identify and describe common types of control devices and control loop arrangements. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Networks: Fiber Optic Systems | This course is designed to familiarize participants with the basic operating principles of fiber optic systems and some of the basic installation and testing methods. After completing this course, participants should be able to describe characteristics of glass fibers and describe the function and types of fiber optic connectors. They should also be able to describe basic procedures for installing and testing fiber optics. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Networks: Setting Up and Troubleshooting | This course is designed to familiarize participants with basic concepts that apply to setting up and troubleshooting control networks. After completing this course, participants should be able to describe different types of cables and connectors that are used to link together devices in control networks. They should also be able to describe basic procedures for installing, testing, and troubleshooting control networks. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Analytical | This course is designed to familiarize participants with input field devices that perform online analyses. After completing this course, participants should be able to describe common applications and procedures that are associated with the use of online analyzers. They should also be able to describe some of the many different types of online analyzers that are used in continuous process systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Analog Configuration | This course is designed to familiarize participants with basic procedures for configuring traditional and "smart" analog field devices. After completing this course, participants should be able to explain how to set zero and span and perform a calibration procedure on a traditional analog transmitter. They should also be able to explain the basics of how to configure a smart analog field device using a portable communicator or a laptop PC. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Digital Configuration with a DCS | This course is designed to familiarize participants with basic procedures for using a distributed control system (DCS) to configure digital field devices. After completing this course, participants should be able to explain how to use the Honeywell TDC 3000 and the Fisher-Rosemount DeltaV to configure a digital field device. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Principles | This course is designed to familiarize participants with some of the basic material, process, and system characteristics that can affect process control. After completing this course, participants should be able to identify and describe some basic factors that affect process control. They should also be able to describe common process control methods and the operation of loops that control critical process variables. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Using Field Communicators | This course is designed to familiarize participants with basic procedures for using field communicators to configure "smart" analog field devices. After completing this course, participants should be able to explain how to configure smart analog transmitters using a HART communicator, a Honeywell communicator, a Yokogawa communicator, and the Foxboro Local Display Module. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Level and Flow | This course is designed to familiarize participants with input field devices that sense and monitor level or flow. After completing this course, participants should be able to describe the basic operation of various types of level measurement and flow measurement devices. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Multiple Loop Control | This course is designed to familiarize participants with the basic operation and use of multiple loop control. After completing this course, participants should be able to explain the basic operation of multiple single loops, cascade control, ratio control, feed-forward control, and special connections that are used with multiple loop control. They should also be able to use a piping and instrumentation diagram (P&ID) to trace boiler control functionally. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

VectorSolutions™

# Instrumentation & Control (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Continuous Process: Pneumatic Controls | This course is designed to familiarize participants with the basic operation, maintenance, and calibration of components in a pneumatic control system. After completing this course, participants should be able to describe how to service the various devices that help dry and filter the air and how to check pressure control devices in the system for proper operation. They should also be able to describe the basic operation and maintenance of some typical control components in a pneumatic system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Pressure, Temperature, and Weight | This course is designed to familiarize participants with input field devices that sense and monitor temperature, pressure, or weight. After completing this course, participants should be able to describe the basic operation of various types of temperature, pressure, and weight transducers and transmitters. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Smart Controllers | This course is designed to familiarize participants with the operation and use of smart controllers. After completing this course, participants should be able to describe basic procedures for installing, configuring, operating, and tuning smart controllers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Single Loop Control | This course is designed to familiarize participants with the basic operation and use of single control loops. After completing this course, participants should be able to explain the basic operation of a feedback control loop, describe how the proportional-integral-derivative (PID) control algorithm works, and identify and describe features that may be used to enhance the performance of a PID controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Troubleshooting DCS I/Os: Procedures | This course is designed to familiarize participants with basic procedures for troubleshooting the inputs and outputs of a distributed control system (DCS). After completing this course, participants should be able to explain how to gather information about a DCS I/O problem, identify possible causes of the problem, test the possible causes, and finish up the troubleshooting procedure. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Tuning Loops | This course is designed to familiarize participants with the basic principles of tuning control loops. After completing this course, participants should be able to describe how to prepare for tuning a loop and how to tune a loop manually using a systematic trial and error method, the Ziegler-Nichols open loop method, and the Ziegler-Nichols closed loop method. They should also be able to describe how tuning can be accomplished by the auto-tune function, by artificial intelligence features, and by tuning software. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Troubleshooting Loops | This course is designed to familiarize participants with basic procedures for troubleshooting control loop problems. After completing this course, participants should be able to explain how to use a systematic troubleshooting procedure to troubleshoot problems in control loops. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Diagrams: Industrial Process Systems | This course is designed to introduce participants to plant system diagrams and diagram symbols. After completing this course, participants should be able to identify and describe the purpose of several kinds of system diagrams, and describe the information found on each type. Participants should also be able to identify symbols commonly used on piping and instrumentation diagrams (P&IDs), describe the types of information typically found on a legend, and use a P&ID to locate the components of a system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Diagrams: Piping and Instrumentation | This course is designed to familiarize participants with the use of piping and instrumentation diagrams (P&IDs). After completing this course, participants should be able to describe the kinds of information that can be found on a P&ID and explain why this information is useful. They should also be able to explain how to use P&IDs to troubleshoot system problems. | 2 | Intermediate |
| Instrumentation and Control: Automatic Process Control, Part 1 | This course is designed to familiarize participants with the basic concepts associated with automatic control of process systems. After completing this course, participants should be able to describe the functions of the four basic elements of an automatic process control system and explain how a process disturbance can affect a process control system. They should also be able to explain how feedback control and feedforward control can be used in process control systems. In addition, participants should be able to explain how resistance, capacitance, dead time, and lag time can affect a process control system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Automatic Process Control, Part 2 | This course is designed to familiarize participants with control modes used with automatic process control systems. After completing this course, participants should be able to describe two-position control, proportional control, reset control, rate control, and proportional-integral-derivative (PID) control and explain how each of these control modes works in a control system. They should also be able to explain how proportional band applies to a control system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Density, Clarity, and Moisture | This course is designed to introduce participants to some devices that can be used to measure density, clarity, and moisture. After completing this course, participants should be able to define various terms associated with density, clarity, and moisture and describe the basic operation of devices used to measure density, clarity, humidity, and moisture. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Concentration | This course is designed to introduce participants to some basic information about analytical variables and to some methods for measuring concentration in liquids and gases. After completing this course, participants should be able to define five analytical variables that are commonly measured in plants and explain how and why analytical variables are measured. They should also be able to describe the basic operation of several different types of analyzers that can be used to measure liquid and gas concentrations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Instrumentation & Control (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Instrumentation and Control: Measurement of Level and Flow | This course is designed to introduce participants to instruments that measure level and flow. After completing this course, participants should be able to explain what level is and describe the basic operation of various direct level measurement devices and indirect level measurement devices. They should also be able to explain what fluid flow, flow rate, and total flow are and describe some common examples of direct flow measurement and indirect flow measurement. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Pressure and Temperature | This course is designed to introduce participants to some of the fundamental aspects of process variable measurement and to some of the basic instruments used for pressure measurement and temperature measurement. After completing this course, participants should be able to describe the function of process instrumentation and describe how to obtain accurate readings from instruments such as gauges, indicators, and recorders. They should be able to explain what pressure and temperature are and how they are expressed, and they should be able to describe the operation of several pressure measuring devices and several temperature measuring devices. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Pressure Gauges and Calibration, Part 1 | The successful operation of a plant is closely linked to the reliability of the indicating instruments used by operating personnel. This course introduces participants to one of the primary responsibilities of instrument technicians, which is to ensure that each of the instruments used to monitor plant processes provides accurate indications. The standard method of ensuring that instruments such as pressure gauges are accurate is to check their calibration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pressure Gauges and Calibration, Part 2 | To properly calibrate rotary-geared pressure gauges, instrument technicians must have an understanding of pressure elements and adjustable pointer mechanisms; calibration standards, comparison graphs, and basic calibration procedures; and the differences in calibration procedures that are dictated by specific types of gauges. In addition to being able to perform calibrations on various types of pressure gauges, instrument technicians must also know how to compensate gauges for static pressures and to select devices that protect pressure gauges and thereby increase their service time. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Distributed Control Systems Introduction | Distributed control systems(DCS) are used in a variety of industries for numerous applications. Whether you are working with pharmaceuticals, food and beverage, or mining operations, this course provides a brief overview of the different components and variations of typical distributed control systems. This information can be applied to almost anyone's particular field where these systems are being used. | 1 | Intermediate |
| Networks Introduction | In all control systems, inputs pass information to the decision-making controller, which then passes information to output devices. The manner in which this "information-passing" process works varies with the type and complexity of the control system. This course will provide an overview of some different types of control systems, as well as some basic concepts that apply to control system networks. | 1 | Intermediate |
| Programmable Logic Controllers: Human-machine Interfaces and Troubleshooting | Human-machine interfaces, or HMIs, come in many forms. Generally speaking, the simplest HMIs are the hard=wired pushbutton operator interfaces found on many machines. Other applications may use dedicated graphic interfaces or PC-based HMIs that can communicate through a network and are customized for a particular machine or process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Installing and Maintaining | Whenever programmable logic controller s(PLC) systems are installed, whenever hardware is modified to fit the needs of changing applications, or whenever the PLC program is changed to accommodate changes in the process or machine operation, the people who do the work must have a thorough understanding of the system. Installation and maintenance in a PLC-controlled system refers not only to the PLC hardware but also to the PLC program. This course will focus on some of the basics involved in installing and maintaining PLC equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: I/O Communication | The most visible parts of the programmable logic controller system are the input system and the output system, the I/O for short. The I/O systems are the interfaces between the PLC processor and the world. A programmable logic controller is a microprocessor-based system that operates on low voltages, typically 5 volts. The real-world devices that control machines or processes operate on a wide range of voltages and currents, as high as 240 volts AC or 125 volts DC. This course will examine the various ways in which real-world devices can be connected to the input and output systems of a programmable logic controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Introduction to Programming, Part 1 | Ladder diagrams have been used in machine automation and process control applications for many years. Programmable logic controllers that are programmed to run ladder diagram programs have replaced virtually all hardwired controls. PLCs are cheaper and more versatile, and most importantly, they can be made to perform different functions by simply changing their programs. Once the PLC is installed and connected to the machine or process being controlled, it is almost ready to go. The last thing that needs to be done is to program the PLC to do its job. This course will detail how to enter a simple ladder diagram program into the memory of a programmable logic controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Introduction to Programming, Part 2 | Ladder diagrams have been used in machine automation and process control applications for many years. Programmable logic controllers (PLCs) that are programmed to run ladder diagram programs have replaced virtually all hardwired controls. PLCs are cheaper and more versatile, and most importantly, they can be made to perform different functions by simply changing their programs. Once the PLC is installed and connected to the machine or process being controlled, it is almost ready to go. The last thing that needs to be done is to program the PLC to do its job. This course will detail how to enter a simple ladder diagram program into the memory of a PLC. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Ladder Logic and Symbology | Ladder diagrams have been used to symbolically describe electrical control (PLC) systems for many decades. Early in the development of PLCs, it was decided to use ladder diagrams in their programming interface as well. This was done so that users of PLC systems would be able to see the program in a form that they were familiar with. Virtually all PLCs still use ladder diagrams. This course examines how PLCs use ladder diagrams to perform logic functions and the symbology involved. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Instrumentation & Control (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Programmable Logic Controllers: Networks and Network Troubleshooting | Most programmable logic controller (PLC) system problems are hardware related, and most of those are in the I/O systems. However, software and network problems do occur and are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This course will examine how to use the PLC programming software to troubleshoot software and network problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Numerics, Part 1 | Programmable logic controllers (PLCs) use not only decimal numbers but also other numbering systems. This course covers the most widely used numbering systems, including how to convert between different numbering systems and how those numbering systems are used by PLCs in typical applications. This course will also examine codes used for storing information in PLCs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Numerics, Part 2 | Programmable logic controllers (PLCs) use not only decimal numbers but also other numbering systems. This course covers the most widely used numbering systems including how to convert between different numbering systems and how those numbering systems are used by PLCs in typical applications. This course will also examine codes used for storing information in PLCs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Program Entry, Testing, and Modification, Part 1 | Installing and maintaining programmable logic controller (PLC) systems involves working with PLC equipment and hardware as well as communications and programming software. A major part of PLC work involves installing, debugging, and changing the program, or project, in a PLC processor. In order to do this work effectively, a thorough understanding of the system and the procedures needed for program entry, testing, and modification is necessary. This course will examine the techniques used initially to install and test a PLC program as well as how to make changes to PLC configurations and programs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Program Entry, Testing, and Modification, Part 2 | Installing and maintaining programmable logic controller systems (PLCs) involves working with PLC equipment and hardware as well as communications and programming software. A major part of PLC work involves installing, debugging, and changing the program, or project, in a PLC processor. In order to do this work effectively, a thorough understanding of the system and the procedures needed for program entry, testing, and modification is necessary. This course will examine the techniques used initially to install and test a PLC program as well as how to make changes to PLC configurations and programs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Programming Functions, Part 1 | Programmable logic controllers (PLCs) have been very successful because they can effectively use bit or discrete I/O instructions to receive inputs from switches and other binary sensors and then drive output field devices such as motor contactors, solenoid valves, and indicators. But modern PLCs are able to do much more by using additional instructions to perform more sophisticated functions such as timing, counting, calculating, manipulating data, and even making decisions. This course will examine many of these “non-I/O” PLC instructions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Programming Functions, Part 2 | Programmable logic controllers (PLCs) have been very successful because they can effectively use bit or discrete I/O instructions to receive inputs from switches and other binary sensors and then drive output field devices such as motor contactors, solenoid valves, and indicators. But modern PLCs are able to do much more by using additional instructions to perform more sophisticated functions such as timing, counting, calculating, manipulating data, and even making decisions. This course will examine many of these “non-I/O” PLC instructions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Troubleshooting Hardware | The human-machine interface, or HMI, can be a very helpful aid to troubleshooting programming logic controller (PLC) hardware. By itself, however, the HMI cannot always provide information needed to troubleshoot a complex PLC system. Other aids must be used to help in hardware troubleshooting. This course will examine how to use the PLC itself, the HMI, and other test equipment to troubleshoot PLC hardware. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| PLCs: Troubleshooting Software, Part 1 | Most PLC system problems are hardware related, and most of these are in the I/O systems. However, software and network problems do occur, and they are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This module will examine how to use the PLC programming software to troubleshoot software and network problems. It will also explore techniques and the hardware and software tools that are available for isolating software problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| PLCs: Troubleshooting Software, Part 2 | Most PLC system problems are hardware related, and most of these are in the I/O systems. However, software and network problems do occur, and they are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This module will examine how to use the PLC programming software to troubleshoot software and network problems. It will also explore techniques and the hardware and software tools that are available for isolating software problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fluid Flow Measurement, Part 1 | This course covers fundamental information pertaining to the way in which differential pressure measurements can be used to determine fluid flow. Most plants contain miles of piping that provide for the efficient transportation of fluid from one location to another. In some cases, the flow of fluid through a pipe must be measured in order to ensure that equipment is lubricated or that a certain mass or volume of fluid is present at a given time and place. There are several methods that can be used to measure the rate at which a fluid flows through a pipe. One commonly used method is to measure fluid flow in terms of differential pressure, which is the difference between two related pressures in a system of flowing fluid. This course covers fundamental information pertaining to the way in which differential pressure measurements can be used to determine fluid flow. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

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# Instrumentation & Control (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fluid Flow Measurement, Part 2 | The flow of fluids is an important aspect of many industrial processes. Fluid flow through industrial systems is often measured by flow meters. Instrument technicians are generally responsible for installing, calibrating, and repairing the flow meters in their facilities. In order to perform these tasks efficiently and effectively, instrument technicians must be able to identify various types of flow meters, and they must understand how the meters measure fluid flow. This course focuses on the following types of flow meters: oval gear flow meters, lobed impeller flow meters, nutating disc flow meters, rotameters, cylinder and piston flow meters, weirs, target meters, turbine meters, vortexshedding meters, magmeters, and ultrasonic meters. The course also includes a discussion of how integrators can be used in measuring the total flow of a fluid. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Liquid Level Measurement, Part 1 | Many industrial liquids are important to plant operations. Accurate level measurements are an essential part of process control for efficient plant operation. Devices for making liquid level measurements are common throughout industry. You need a basic understanding of liquid level instruments design, how the instruments operate, and how they're maintained. In this course, you will explore a number of different devices used to measure and control liquid levels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Liquid Level Measurement, Part 2 | This course will familiarize you with various devices and systems that use pressure to measure liquid level. Indirect level measurement instruments measure quantities, such as liquid pressure, that vary due to liquid level changes. Indirect level measurement instruments are a practical way to measure liquid levels, and the converted signals are used for indication and control functions throughout the plant. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pressure and Pressure Measurement | Many of the instruments used to monitor systems or processes in a plant measure pressure. In order to understand how these instruments operate, instrument technicians must understand the concept of pressure; the ways in which solids, liquids, and gases exert pressure; and the standards established for pressure measurement. These topics will be covered in this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Temperature and Temperature Measurement, Part 1 | Accurate and reliable temperature measuring instruments help industrial facilities operate with maximum safety and efficiency. An understanding of how temperature measuring devices operate depends on an understanding of the concept of temperature and the ways in which solids, liquids, and gases respond to temperature changes. This course is intended to introduce technicians to the principles of operation and some common maintenance procedures related to the three basic types of mechanical thermometers: fluid thermometers, filled system thermometers, and bimetallic thermometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Temperature and Temperature Measurement, Part 2 | Among the many temperature measuring instruments found in industrial facilities are several that use electricity as a basis for temperature measurement. Therefore, technicians are frequently called upon to install, remove, inspect, and troubleshoot a variety of electrical temperature measuring devices. This second course on Temperature and Temperature Measurement covers the basic operating principles behind the most commonly used electrical temperature sensors and an infrared temperature detector, all of which use electricity as a basis for temperature measurement. Also discussed are some common maintenance and troubleshooting procedures related to thermocouples, resistance temperature detectors (RTDs), and thermistors. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| SMART Instrumentation in Biological and Chemical Treatment | What is SMART instrumentation? The definition and implementation of "SMART Instrumentation" has evolved over the past five or six decades to its present state where we can literally and figuratively put cruise control on a bicycle; however, it does not ride itself. Proper implementation of a monitoring and control scheme for even a very small system can generate terabytes of useful information per year, all of it meaningless unless correlated, analyzed, trended, structured, and most importantly, acted upon. In this interactive online course, we will discuss the quality and performance specifics, operational reliability, environmental safeguards, and safety risks for control and monitoring systems using SMART instrumentation. We will also cover the reduced costs that can be obtained using SMART instrumentation. | 1 | Intermediate |
| Process Control Charts | Many production facilities use process control charts to track and visually show the behavior and stability of a process over time. This course covers the benefits of using process control charts, the importance of consistency, the many kinds of process control charts, the different elements of process control charts, and how to continually improve the production process. | 0.25 | Intermediate |
| Process and Instrumentation Diagrams | Process and Instrumentation Diagrams, also known as P&IDs, are basically maps meant to show process connections and equipment relationships pictorially. They are invaluable during the planning and installation of new equipment, maintenance planning and procedures, and when comparing as-installed controls to the original design. This module will discuss how P&IDs are used, how to read the symbols used on P&IDs, and a real world examples of a P&ID system. | 0.5 | Intermediate |
| Process Control Fundamentals | Process control simply refers to the control of a process. The main goal of process control is to stabilize process operations in order to consistently produce the desired results, and it can be automatic or manual. In modern processing and manufacturing industries, process control is frequently implemented by automated, computer- based control systems which utilize a number of different "tools." The fundamental building block of these systems is the "process control loop." This module discusses open and closed loop controllers, as well as specific examples of each. | 0.25 | Intermediate |
| Photoswitches, Proximity Sensors, and Feedback Devices | Photoswitches, proximity sensors, and feedback devices are all used to detect objects or information. They are useful in industrial and manufacturing environments to sense product or personnel in the line of machinery or equipment. This module discusses the operation of the different types of each of these. | 0.25 | Intermediate |
| PLC Basics | A Programmable Logic Controller (PLC) is a computer that is designed to be used in industrial applications. The PLC has a specialized operating system that carries out a set of user instructions over and over again. This course will discuss what a PLC is as well as common PLC components and applications. | 0.4 | Intermediate |
| Logic Technology, Logic Functions, Sequential Logic, and Analog Conversion | The field of electronics deals with information in the form of electrical signals. Most of the electrical signal information that people encounter is in analog form. An analog signal is one that is continuously variable between the minimum and maximum values. This course begin with a discussion on digital and analog signals, covers truth tables and common logic functions, and then concludes with logic circuits and analog conversions. | 0.5 | Intermediate |
| Blueprint Basics | Blueprints are one of the most important communication tools that a company can possess. Blueprints must communicate ideas about many different subject areas to many different people within an organization. This course will discuss the front page, legend, and other aspects of blueprints. | 0.25 | Intermediate |

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# Instrumentation & Control (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PLC Ladder Logic | "Programmable logic controllers, or PLCs, are specialized, robust industrial computers. They are designed to continuously control equipment and processes based on process inputs and logical control programming. One of the most common ways to program this type of computer is a technique called ladder logic. This is a technique that provides a visual representation of the logic flow which helps with both initial programming and subsequent troubleshooting. This course discusses the background of ladder logic as well as basic instruction types such as examine if closed and examine if opened. This course also illustrates several varying ladder logic examples such as a lamp, motor starter, and garage door." | 0.4 | Intermediate |
| Symbols, Standards, and Schematics | One way in which electrical components are identified in drawings is by the use of schematic symbols. A schematic symbol either represents a single component in an electrical circuit, such as a pushbutton or motor, or a part of a component, such as with relays and starters. This course covers component representations, component abbreviations, electrical standard organizations, blueprint layout, and blueprint styles. | 0.25 | Intermediate |
| ControlLogix®: Introduction to Basic System, Software & Hardware Components | The ControlLogix® series of programmable logic controllers are the PLC's of the future. The smallest controller has advanced capabilities above existing PLC's. They have more computing power and handle motion control better. Progressive companies that are planning for advancing their process are changing to the ControlLogix series. Rockwell Automation is leading industry's advancing technology requirements. | 0.5 | Intermediate |
| ControlLogix®: The Project Structure | "The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs with greater computing power and motion control.<br>The purpose of this interactive online course is to provide an understanding of the ControlLogix® project structure and PLCs. This course reviews the basic elements of a project and explains the functionality of each element, as well as introducing the tools which are used to generate programs or projects for ControlLogix® PLCs using Rockwell Automation's RSLogix 5000®." | 0.5 | Intermediate |
| ControlLogix®: Configuring Hardware and Software | "The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs, including better power and motion control.<br>This interactive online course will allow you to gain a solid understanding of hardware, software and communication concepts inherent to ControlLogix®'s RSLogix5000 ladder logic programming software.<br>This course is designed for technicians, maintenance personnel or engineers who want to improve maintenance and troubleshooting skills in order to minimize machine downtime.<br>This course will introduce you to tasks involved in creating a project and the steps involved to establish communications and download a project to the controller. This course also discusses how to create new file menus to enable the user to configure the projects created." | 0.5 | Intermediate |
| ControlLogix®: Basic Programming | "The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs, including exceptional power and motion control.<br>This interactive online course will introduce you to the ControlLogix® program editor. The course provides an understanding of the program logic, Input and Output instructions, series and parallel instructions, ladder logic and tags. This course is designed to familiarize you with the functions, architecture, and software in use in the ControlLogix® PLC platform, providing you with basic skills that enable you to comfortably interact with the programming software and communicate with the PLC processor." | 0.5 | Intermediate |
| ControlLogix®: Troubleshooting | "Downtime is extremely costly in today's industry. Even when using preventative maintenance and other techniques to eliminate downtime, failure will still occur. This interactive online course will introduce you to ControlLogix troubleshooting process, and the tools used for troubleshooting controller faults and input/output modules. The course will teach how to find and clear faults both manually and through the controller. Being able to quickly and accurately troubleshoot a programmable logic controller system, or "PLC," is a vital skill for all maintenance technicians." | 0.5 | Intermediate |
| ControlLogix®: Communications and Advanced Programming | "Programmable Logic Controllers, or PLCs, are the brains behind much of the equipment that runs in manufacturing facilities, warehouses, and other industrial operations. These computers require specific programming for each industrial machine; therefore, it is necessary to understand the logic behind the programming for each task. This interactive online course provides information on basic communication instructions for ControlLogix® PLCs and will also discuss more advanced programming techniques using program instructions, including bit, timer/counter, and compare instructions, as well as move/logical, math conversion, and program control instructions." | 0.5 | Intermediate |
| Programmable Logic Controllers (PLC's) - Introduction and Theory of Operations | This interactive online course offers a thorough introduction into programmable logic controllers (PLCs). We will begin with an overview of the history and the role PLCs play in factory automation. We will discuss the basic principles of PLCs and core modules of an industrial control system. Functions (analog input and output), disturbed control interface, I/O's (digital inputs and outputs), the COU, and isolation power will also be examined. | 1 | Intermediate |
| Programmable Logic Controllers (PLC's) - Logic Operations | This interactive online course includes a comprehensive look at basic electrical circuits and includes information on converting a schematic to LAD instruction. Logic operations include any operations that manipulate Boolean values. Boolean values are either true or false and they are named after English mathematician George Boole, who invented Boolean algebra, and is widely considered the founder of computer science theory. They can also be represented as 1 and 0. Normally, 1 represents true, and 0 represents false, but it could be the other way around. | 0.5 | Intermediate |
| Programmable Logic Controllers (PLC's) - Hardware, Inputs, Outputs, Discrete/Analog | "This interactive online course is designed to help you understand the hardware used in PLC's as well as how discrete and analog inputs and outputs permit the programmer to aid machinery in performing at a more efficient and stable state. Inputs are signals or data received by a system and outputs are the signals or data sent from it. Input/output (I/O) devices are used by a human, or system, to communicate with a computer. For instance, a keyboard is an input device for a computer, while a monitor is an output device. This course will examine the primary causes of faults associated with PLC based control systems: I/O devices and field wiring. We will discuss both hardware and software which will aid in finding these faults quickly. You will be introduced to analog inputs and outputs. These include sensors and actuators that will be of use for industrial measurements and movements." | 0.5 | Intermediate |
| Programmable Logic Controllers (PLC's) - Programming a PLC System | "Programming a PLC system provides the basic technical skills and knowledge necessary to work with programmable logic control systems typically found in an industrial or manufacturing environment. This interactive online course is designed to equip the novice with little or no prior PLC programming experience with the basic tools necessary to create a complete PLC program using ladder logic common to most current platforms. Upon completion, you will be able to use programmable logic controllers to solve machine and process problems. A systems approach to PLC programming training is used because the programmable logic controller is one major component of larger manufacturing systems." | 0.5 | Intermediate |

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# Instrumentation & Control (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Programmable Logic Controllers (PLC's) - Design and Installation of a PLC System | "Automation in the manufacturing industry can improve production output and reduce costs. A modern, competitive workforce must be technically literate and know the ins and outs of programmable controllers. New state of the art electrical and electronic devices and equipment use PLCs to increase manufacturing flexibility, simplify processes, and improve safety. Automation also allows a better quality of life for workers while maintaining quality, efficiency, and a market for the product produced. This interactive online course is designed to give you the ability to size and select the controllers necessary for the job at hand. While it is uncommon for engineers to build their own controller designs, it is the engineers' responsibility to effectively communicate their design intentions." | 0.5 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems | "In your plant, there are process conditions that can vary or change, such as temperature, pressure, flow and level. Frequently, these process variables must be maintained at or near a desired value. Understanding how these systems operate will allow you to manage your system at desired operating conditions. This interactive online course will teach you about the elements normally found in a basic pneumatic control system. You will learn about control systems used to maintain temperature, pressure, flow and level. Additionally, you will learn about resources that provide information about pneumatic control systems." | 1 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems and Diagrams | "Pneumatic instruments play an important role in the overall operation of a plant. Knowing how to troubleshoot and fix problems with pneumatic instrument systems will allow you to get your plant quickly back into operation. This interactive online course will use an example of a level control system to teach you about pneumatic instrumentation, basic pneumatic instrument groups and their functions. You will also learn about commonly used plant system diagram symbols and how they are used in diagnosing and correcting problems in the instrument systems found in your plant." | 1 | Intermediate |
| Pneumatics: Actuators and Positioners | Typically, pneumatic actuators and positioners are rugged and dependable. But like any other piece of equipment, their parts can wear out from the rigors of around-the-clock use and may need to be replaced or adjusted from time-to-time. In this interactive online course, we're going to look at several different actuators and positioners to see what their component parts are, how they work, and how to adjust them. | 1 | Intermediate |
| Pneumatics: Transmitters | "Most pneumatic instruments have in common basic components and structures. And even though they may look different, their operation is often quite similar. In this interactive online course, we will cover the information needed to recognize the common components and structures of most pneumatic instruments and to understand how the common structures are related. We will cover types of pneumatic instruments, components, and mechanisms, self-balancing instruments, input mechanisms, error detector mechanisms, and output/balancing mechanisms." | 1 | Intermediate |
| Pneumatics: Self Balancing Instruments | At first glance, most pneumatic control equipment seems like a maze of bellows, cams, beams, and other mechanisms packed into a small area. Sometimes the design makes it appear as if the instrument is hard to understand. However, many of these instruments are fairly easy to understand if you know what you're looking for. In this interactive online course, we'll look at a few types of force balance and motion balance instruments in greater detail. We'll see how they operate and where common adjustments are located. | 1 | Intermediate |
| Pneumatics: Indicators and Hand-Auto Control Stations | "Transmitters, recorders, signal converters, indicators, and hand-auto control stations are all important pieces of instrumentation and control equipment used in pneumatic systems. Understanding how these instruments function will allow you to maintain your system at desired operating conditions. This interactive online course will teach you about the relationship between the input and output of a transmitter and how a pneumatic transmitter develops an output pressure signal that accurately represents the value of a process variable. You will also learn how to perform calibration adjustments on a typical pneumatic transmitter. Additionally, you will learn the function and purpose of hand-auto control stations." | 1 | Intermediate |
| Pneumatics: Controllers | "In industrial process plants, it's critical for pneumatic controllers to work properly and to be adjusted correctly. Understanding how controllers operate will help you when you're repairing a controller or tuning a pneumatic control system. This interactive online course will teach you about several types of pneumatic controllers. You will learn how these controllers operate and how to make basic adjustments to the controllers. You will also learn the mechanisms in a controller and how their four basic functions operate." | 1 | Intermediate |
| Pneumatics: Multi-Element Pneumatic Control Systems | "Multi-element pneumatic control system,s like all process control systems, operate primarily to maintain a process variable (such as level, temperature, flow, or pressure) at or near a predetermined value known as set point. This interactive online course focuses on several types of multi-element pneumatic control systems that are commonly used in industrial plants. The basic design and function of the control system are explained, and emphasis is also placed on how the instruments and components in the system work together to keep a process variable at or close to set point." | 1 | Intermediate |
| Pneumatics: Pneumatic Instrument Tubing | In any industry that uses pneumatic instrument systems to monitor and control plant processes or conditions, you'll discover miles of associated pipes and tubing routed throughout the plant. Without these intricate networks of piping and tubing, a plant couldn't operate. The important job of installing pipe and tubing for pneumatic control systems often belongs to you, the instrument technician. You'll be concerned specifically with installing pipe for instrument air supplies and tubing from one component to another in pneumatic systems that control process variables. Our goal in this interactive online course is to examine the basic skills and information you need to know to install piping and tubing for a pneumatic control system. To meet this goal, we'll observe a qualified technician as he puts a piping and tubing installation together. We'll take a close look at the materials and tools he uses and the technique he applies. However, before we start to do any actual work with pipe or tubing, we need to establish what pipe and tubing are, and we need to take a look at the major characteristics of each; their function, the important size factors for both, and the type of material they're made of. By doing this, we'll have a better understanding of how pipe and tubing are similar in some respects but different in others. | 1 | Intermediate |
| Pneumatics: Troubleshooting Pneumatic Instrument Systems | "As an instrument technician you're going to find yourself doing a lot of troubleshooting. By using a logical procedure, you can face each problem confidently and solve the problem logically and efficiently. This interactive online course will teach you the principles of troubleshooting and how to apply them to troubleshooting pneumatic instrument systems. You will learn how to observe, diagnose, and restore pneumatic instrument systems following troubleshooting principles. Additionally, this course will walk you through a troubleshooting example to demonstrate how to diagnose and resolve a pneumatic instrument system issue." | 1 | Intermediate |
| Pneumatics: Tuning Pneumatic Control Systems | When you tune a control system, you check and adjustment the instruments in the system to ensure that it operates within specified limits. The procedure's a lot like tuning an automobile engine. No two engines are the same, but if you know the engine and you use a logical tuning method, you can probably do the job. Now, in a plant, no two process control systems are exactly the same, but with the right knowledge and resources, you can tune a variety of control systems. In this interactive online course, we'll look at some of the basic principles of tuning a pneumatic control system. Then, we'll look at the process characteristics that are important in tuning, and we'll examine some common tuning methods. Afterwards, we'll see how an instrument technician tunes a control system. Most of the information that you'll learn from this course can be applied to the pneumatic control systems in your plant. | 1 | Intermediate |

# Industrial Maintenance

| Title | Description | Hours | Level |
|---|---|---|---|
| 2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy | "This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8." | 1 | Intermediate |
| 2020 NEC® Changes: Branch Circuit GFCI Protection | Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210. | 1 | Intermediate |
| 2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures | "This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units." | 1 | Intermediate |
| 2020 NEC® Changes: Devices, Lighting, and Gear | "This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting." | 1 | Intermediate |
| 2020 NEC® Changes: Equipment for General Use | "This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances.<br>Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers.<br>Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries." | 1 | Intermediate |
| 2020 NEC® Changes: Focus on Wiring Methods | This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. | 1 | Intermediate |
| 2020 NEC® Changes: General Requirements | The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space. | 1 | Intermediate |
| 2020 NEC® Changes: Overvoltage and Grounding & Bonding | This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. | 1 | Intermediate |
| 2020 NEC® Changes: Process Review and Updated Articles | "This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems." | 1 | Intermediate |
| 2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems | Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources. | 2 | Intermediate |
| 2020 NEC® Changes: Special Equipment | Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on underfloor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring. | 1 | Intermediate |
| 2020 NEC® Changes: Special Occupancies | The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations. | 1 | Intermediate |
| 2020 NEC® Changes: Wiring and Protection | Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection. | 2 | Intermediate |
| 5S Methodology | Is your workplace a mess? Tired of spending hours searching for the right tool? This course will teach you about the 5S methodology, which focuses on organizing and standardizing the workplace to increase efficiency and effectiveness. Its five principles, sorting, straightening, sweeping, standardizing and sustaining, will make you and your co-workers better prepared to accomplish all of your tasks while being safer and more efficient in the process. | 0.25 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| AC Fundamentals Review | This course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be "qualified." A person who does not meet this requirement should work under the direct supervision of a qualified person. | 1 | Intermediate |
| AC Generator Basics | "A generator is a device that converts mechanical energy into electrical energy. AC generators are commonly used to provide electrical energy for a wide range of commercial, domestic, and industrial applications. AC generators vary considerably in size, from small ones like automobile generators, to large generators that can supply power needs for a large city.<br>The purpose of this training course is to focus on AC generators that are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts)." | 1 | Intermediate |
| AC Generator Maintenance | The purpose of this course is to provide an overview of the operation and maintenance of large alternating current (AC) generators, which are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts). This course covers common AC generator maintenance tasks such as replacing brushes, performing overhauls, and conducting electrical tests. | 1 | Intermediate |
| AC Motor Basics | Electric motors provide the mechanical energy that is needed to operate a wide variety of equipment in an industrial facility. To make sure that the motors in their plant are operating properly, operators should be familiar with the fundamentals of motor operation and the basic operating characteristics of AC motors. In this course, the trainee will learn about the basic operation of an AC motor as well as its parts and functions. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 1 | This course introduces participants to AC motor controllers, which are devices, or groups of devices, that control the operation of alternating current (AC) motors. They can start, stop, or protect a motor; control its speed; and change its direction. By doing so, AC motor controllers make it possible to use motors more effectively in industrial operations. In most industrial facilities, electrical maintenance personnel are responsible for maintaining AC motor controllers and correcting any controller problems that arise. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 2 | Alternating current (AC) motor controllers serve a vital function in industrial facilities: They control the operation of AC motors. Therefore, when a controller breaks down, it is essential for electrical maintenance personnel to know how to locate the cause of the controller malfunction and be able to make the necessary corrections. It is also important for electrical maintenance personnel to be able to maintain the AC motor controllers in their facilities so that they operate with maximum efficiency and a minimum number of breakdowns. This course deals specifically with troubleshooting and maintenance procedures for AC motor controllers. | 1 | Intermediate |
| AC Motor Operation and Types | DC, or direct current is the electricity that flows in a single direction within a circuit or motor. AC, or alternating current, is the electricity that flows back and forth. The main components of an AC induction motor are the rotor and the stator. The motor converts electrical energy to mechanical energy when the rotor is pulled by the fluctuating magnetic field in the stator. This course will discuss single-phase and three-phase motor construction and operation. | 0.25 | Intermediate |
| Advanced Rigging, Part 1 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on equipment used for lifting loads that are heavy, bulky, or hard to balance. | 1 | Intermediate |
| Advanced Rigging, Part 2 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on the techniques used for lifting loads that are heavy, bulky, or hard to balance. | 1 | Intermediate |
| Alternating Current | Alternating Current is a course designed to familiarize participants with how alternating current (AC) circuits work, and how voltage and current can change depending on the load, the source, and how the load and source are connected together. After completing this course, participants should be able to determine current and voltage values for an AC sine wave; explain how resistance, inductance, and capacitance affect AC circuits; explain how to calculate power in AC circuits and how to adjust power by correctly selecting and sizing circuit components; and describe the construction, operation, and use of various types of transformers. | 2 | Intermediate |
| Applied Vibration Analysis: Analyzing Bearing Vibrations | In this interactive online course you will apply the analysis process to diagnose developing bearing problems. We almost have to start with bearings for one very simple reason. Every piece of equipment we'll analyze - pumps, gearboxes, and all the rest will have at least one bearing somewhere in or near them. Diagnosing bearing problems in different types of equipment will be a fundamental part of your work as a vibration analyst. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Fan Vibrations | For many manufacturing plants, process industries, and utilities fan maintenance is a way of life. In this interactive online course we'll apply the vibration analysis process to diagnose developing fan problems. And there are two types of fans we'll examine. First the overhung type, in which the fan element or blade assembly is mounted on the end of a rotating shaft. And second, the center hung type, in which the shaft extends through the element and is supported on both sides. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Gear Vibrations | Analyzing vibration really means interpreting vibration, and nowhere is this point better illustrated than in the analysis of gear boxes. They are literally sealed metal boxes but, with modern equipment, an experienced vibration analyst can almost peer inside the box and evaluate the condition of internal components. That's what we'll do in this interactive online course - apply the analysis process to diagnose developing gear box problems. To help get you there we'll show you how to diagnose a gear mesh problem in a single reduction gear box, a gear mesh problem in a double reduction gear box, a bearing problem in a double reduction gear box and some other common gear problem signatures. | 0.5 | Fundamental |
| Applied Vibration Analysis: Analyzing Motor Vibrations | Analyzing motor vibrations should be easy enough - right? After all, the only moving part is the shaft and rotor assembly. Most component equipment: gear boxes, fans, and pumps are most often driven by electric motors. In this course we'll apply the analysis process to diagnose most developing motor problems. Our case histories will be taken from 2 types of motors: DC motors and AC induction motors. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Pump Vibrations | It's hard to imagine an industrial facility of any size without at least one pump. In this interactive online course we'll apply the analysis process, which is basic to vibration analysis, to diagnose developing pump problems. Also, we'll learn about an additional analysis tool - Trend analysis. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Spectral Data | Do you know the process and procedure for analyzing vibration spectral data? In this interactive online course, we present a critical phase in your applied vibration analysis training. Remember that the goal of this series of courses is for you to learn to diagnosis developing equipment problems by analyzing the vibration spectrum. In this course, you'll learn a 6-step process for analyzing spectral data. This may be the most important course in the series. | 0.5 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Applied Vibration Analysis: Collecting Spectral Data | The job of the vibration analyst can be broken into two primary functions, collecting spectral data and analyzing spectral data. In this interactive online course you'll learn to collect spectral data safely, accurately, and consistently. Everything begins with the data you collect, only it probably won't be just you. Any number of people might collect data, so consistent procedures and sound fundamentals are essential. To help you develop them we'll offer some basic guidance for establishing a database. We'll review some common transducer or probe designs and discuss selecting the right transducer for your equipment. We'll recommend some safety practices that should become second nature to you. We'll identify good work practices for collecting data. And we'll evaluate the amplitude of vibration when you find it. | 0.5 | Intermediate |
| Applied Vibration Analysis: Introduction | When you get complaints about vibration in a piece of equipment - do you know what to do? In this interactive online course, you will be introduced to the principles of machine vibration. We'll examine what machine vibration is. We'll define some common terms associated with vibration and identify the causes of vibration in different types of machinery, primarily machines with rotating components. We'll also look at some instruments used to detect vibration. In addition you will receive some guidelines to follow when collecting vibration data. | 1 | Intermediate |
| Arc Welding Basics | "Arc welding is a process for joining pieces of metal. In this process, the high temperature produced by an electric arc near the surface of the metal causes the metal in the pieces to melt, and upon cooling, to fuse together. This course discusses the basic components and the three major types of arc welding. This course also illustrates different joint types, proper welding techniques, common weld defects, and finally the PPE that should be worn while arc welding." | 0.43 | Intermediate |
| Arc Welding Processes | "Arc welding is a process for joining pieces of metal. In this process, the high temperature produced by an electric arc near the surface of the metal causes the metal in the pieces to be joined to melt, and upon cooling, to fuse together. This course discusses the most common types of arc welding including shielded metal arc welding, gas metal arc welding, and gas tungsten arc welding. This course also illustrates each type and describes the variables and equipment used in each type." | 0.5 | Intermediate |
| ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality | "ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55). " | 1 | Fundamental |
| ASHRAE Essentials: 55-2017 – Thermal Environmental Conditions for Human Occupancy | This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners. | 1 | Fundamental |
| ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings | "This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners." | 1 | Fundamental |
| Asset Condition Management: Alignment and Balancing Training | "Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures." | 1 | Intermediate |
| Asset Condition Management: Motor Testing | "Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors." | 1 | Intermediate |
| Asset Condition Management: Setting Up an Oil Analysis Program | "Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel. " | 0.5 | Intermediate |
| Asset Condition Management: Vibration Analysis Training | "Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring." | 1 | Intermediate |
| Auxiliary Vessels | "Process facilities contain a number of process units, and each process unit consists of one or more process systems. These process systems are made up of many different types of components, including various types of process vessels. A process operator must be familiar with the functions and features of all the different types of process vessels. This course focuses on a general group of vessels that can be referred to as auxiliary vessels." | 1 | Intermediate |
| Basic Electricity Review | This course introduces the fundamental principles of electrical theory as applied to electrical circuits and devices such as transformers, inductors, and capacitors. The general topics covered in this course include the nature of electricity, basic electrical quantities and their units of measurement, electrical circuits, and electromagnetism. | 1 | Intermediate |
| Basic Machines and Motion | This course discusses what mechanical advantage is and the different basic machines that have a mechanical advantage. These machines include levers, pulleys, wheels, inclined planes, wedges, screws, and gears. This course also describes the different types of motion including linear, circular, harmonic, and wave | 0.25 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Basic Rigging, Part 1 | The purpose of this course is to provide participants with an overview of basic rigging. Safely accomplishing any rigging operation involves selecting the proper equipment, determining if the equipment is in acceptable condition, and properly carrying out all applicable procedures. This course focuses on basic rigging components. | 1 | Intermediate |
| Basic Rigging, Part 2 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on basic rigging procedures. | 1 | Intermediate |
| Batteries | A battery is a primary component of a substation or switchyard direct current (DC) control system. The function of the control system is to supply control power to operate critical devices such as protective relays, alarms and status indicators, supervisory and communications equipment, and switchgear operating circuits. This course describes the role of the battery in the DC control system, the components of a lead-acid battery, how a battery works, battery ratings, and general battery inspection steps. | 1 | Intermediate |
| Battery Cell Construction, Maintenance, Specifications, and Types | A cell converts chemical energy into electrical energy. The basic cell consists of two electrodes of dissimilar metals that are electrically isolated from each other, an electrolyte, and separators. A chemical reaction inside the cell produces electrons. Electrons must flow from the negative electrode to the positive electrode for the chemical reaction to take place. Unless electrons are flowing, the chemical reaction does not take place. Once you connect a load, the reaction starts. This course discusses many different aspect of battery cells. | 0.5 | Intermediate |
| Battery Types and Charging Theory | This course discusses multiple types of batteries and the theory of battery charging. It will cover the chemical action of charging, charging limitations, voltage and current sources, charge rates, and battery temperature. | 0.25 | Intermediate |
| Bearings Basics | Bearings are machine parts in which other parts turn or slide. Almost every piece of moving machinery in an industrial facility uses bearings. This course describes the different types of bearings, their functions, and corresponding maintenance procedures. | 1 | Intermediate |
| Belt Drive Adjustment | The primary function of all belt drives is the transmission of power from a source, such as an engine or electric motor, to a variety of devices. Improper tension and misalignment are the main problems that cause belts to fail. Both of these can be prevented with regular inspections, and basic knowledge of how to adjust tension and alignment. This course will describe safety measures for working with belts and drives, how to prevent common belt problems, how to inspect a belt, as well as how to remove and replace belts. | 0.25 | Intermediate |
| Belt Drive Basics | Belt drives are known as flexible machine elements. This type of element has the advantage of being able to absorb significant amounts of shock and vibration. The primary function of all belt drives is the transmission of power from a source, such as an engine or electric motor, to a variety of devices. This course will discuss advantages and disadvantages of belt drives, belt types, common belt problems, and proper belt handling. | 0.25 | Intermediate |
| Blueprint Basics | Blueprints are one of the most important communication tools that a company can possess. Blueprints must communicate ideas about many different subject areas to many different people within an organization. This course will discuss the front page, legend, and other aspects of blueprints. | 0.25 | Intermediate |
| Boolean Algebra, Part 1 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Boolean Algebra, Part 2 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Boolean Algebra, Part 3 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Building Air Systems | A building air system provides a controlled environment for personnel working in the building and provides the needed air adjustments. This is done by using exhaust and air makeup to control contaminates and preserve the building structure. This course describes the purpose of building air systems, makeup and exhaust air systems, conditioning methods, and air balance. | 0.25 | Intermediate |
| Buses and Storage | This course covers the definition of a bus and then discusses computer storage such as USBs, FireWire, CDs, and DVDs. | 0.5 | Intermediate |
| Capacitors, Part 1 | Capacitors are used to control and increase the amount of capacitance in electrical circuits. In this course, participants will learn about the principles, function, and construction of capacitors as well as how to calculate capacitance and RC time constants of circuits. | 1 | Intermediate |
| Capacitors, Part 2 | Conditions exist in any transmission and distribution system that result in power losses in the systems and equipment that deliver power and in the systems and equipment that use power. In order to compensate for these power losses, utilities often use devices such as capacitor banks and shunt reactors. This course covers the functions of substation capacitors and reactors as well as how they can be safely cleared, maintained, and tested. | 1 | Intermediate |
| Centerlining Methodology | Centerlining is a methodology used to reduce product and process variability and increase machine efficiency in manufacturing and other industrial processes. The two objectives of Centerlining are to determine the best settings for a production process and to ensure the best settings are always used during production. This course illustrates the key concepts of Centerlining and will guide your production team to produce products that are consistently made, which leads to satisfied customers and lower costs. | 0.25 | Intermediate |
| Centrifugal Compressors | This course is designed as a reference tool that participants can use to refresh their understanding of centrifugal compressor components and operation. This course also covers the disassembly and reassembly of a vertically split compressor and the various checks and measurements that are made to compressor components. | 1 | Intermediate |
| Centrifugal Pump Components | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Centrifugal pumps convert external rotational mechanical energy into kinetic energy within a liquid. In a centrifugal pump, this is done by accelerating the liquid from the center to the outer rim of a spinning impeller within a pump casing. This course covers the terminology and function of the mechanical components that make up a typical centrifugal pump. | 0.5 | Intermediate |
| Centrifugal Pump Curves and Theory | A centrifugal pump is a dynamic machine that has performance characteristics which are partially determined by the environment in which it is operating. One of the best ways to display and study the capabilities of a given pump is with a graph called a pump performance curve. A pump performance curve is actually a set of curves showing a number of parameters versus flowrate. Pump curves can be combined with hydraulic requirements, or system curve, to determine the suitability of a pump for a given task. | 0.5 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Centrifugal Pump Fluid Mechanics | Pumps convert rotational kinetic energy, such as that supplied by an electric motor, into hydrodynamic energy, or an increased pressure in a fluid required to make it flow. In order to make a fluid flow, energy, or pressure must be supplied to overcome two fundamental obstacles to flow. One obstacle is created when the elevation of a fluid is increased. The second is presented by the need to overcome the internal resistance of a fluid to flow. This course focuses on how these basic hydraulic concepts apply to piping system evaluation and pumping requirements. | 0.5 | Intermediate |
| Centrifugal Pump Operations and Maintenance | Pump operations and pump maintenance are two closely interrelated topics. Poor mechanical pump maintenance will lead to a loss of hydraulic performance and what may appear to be operational problems. Operational decisions which cause the pump to operate outside of its preferred operation region can lead to physical pump damage which could be misinterpreted as a traditional maintenance issue. It is important to determine the root cause of a problem. This course will cover methods for monitoring pump hydraulic operation and methods for observing and maintaining the mechanical condition of a pump. | 0.5 | Intermediate |
| Centrifugal Pump Selection and Sizing | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Pumps have been developed to specifically address a wide range of applications. Selecting the correct pump for a given job can be a daunting proposition. Some pump classifications are based on their hydrodynamic characteristics, some are based on mechanical construction and some are based on compliance with industry standards. In this course, we will help you understand these different classifications and present some of the strengths and weaknesses of the different designs. | 0.5 | Intermediate |
| Centrifugal Pump System Components and Design | The purpose of a pump is to increase the pressure of a liquid and transfer it from one location to another. Although a pump is essential to this goal, it is only one element of a larger system that is required to accomplish liquid transfer. This course will cover some of the mechanical components such as drivers and couplings that support pump operation. It will also cover how the design of a piping system around a pump will affect pump selection and performance. | 0.5 | Intermediate |
| Centrifugal Pumps | "Pumps are used to move liquids from one place to another by increasing the mechanical energy of the liquid. The energy can be used to raise the liquid to a higher elevation or to increase its velocity or pressure. In a centrifugal pump this is accomplished by rotating an impeller which creates centrifugal force that transfers energy to the liquid. This module focuses on pumping principles and operation guidelines for typical centrifugal pumps. " | 0.5 | Intermediate |
| cGMP Essentials: Change Control | In this online interactive course, we'll be looking at change control. We're going to discuss why we need change control and what that process looks like. You'll see what areas are typically governed by change control. We're also going to look at the considerations you should have regarding how the change will impact the system, how you're going to implement the change, and follow the proper notification procedure. | 0.17 | Fundamental |
| cGMP Essentials: Data Integrity | "As more and more data is being generated in the pharmaceutical world, the integrity of that data must be protected. In this data integrity course, employees will understand what data is, what the regulatory expectations are for data, the controls used, good documentation practices and what kinds of data integrity issues exist." | 0.17 | Fundamental |
| cGMP Essentials: Deviation and CAPA | "Errors and issues happen. When they do, our employees need to know how to investigate these occurrences and how to prevent their recurrence. Deviation and CAPA walks employees through steps to take when performing a root cause analysis and the CAPA process." | 0.17 | Fundamental |
| cGMP Essentials: Good Personal Hygiene | "One of the easiest cGMP compliance practices is good personal hygiene. In this course, employees will learn why good personal hygiene is important and measures they can take to protect themselves, fellow employees and our customers." | 0.17 | Fundamental |
| cGMP Essentials: Intro to cGMP | "As a new pharmaceutical employee, it is important to understand the rules and regulations that govern the pharmaceutical business. Introduction to cGMP will educate all employees on the history of the US FDA, why we have good manufacturing practices and why they are important not only to our business, but for the health and safety of our consumers. In this online interactive course, we will discuss current good manufacturing practices, how they came about, and why they are important to the day-to-day quality standards set within our organizations." | 0.17 | Fundamental |
| Chain Drive Basics | A chain drive is a system that includes two or more sprockets and a chain. One sprocket is driven, and its teeth mesh with the gaps in the links of the chain. When the sprocket is turned, it catches the chain, and transfers the force of the input to the rest of the system. The purpose of a chain drive is to transmit power from one place to another. This course covers the common components of chain drives as well as several procedures that can be performed to optimize chain drive performance. | 0.5 | Intermediate |
| Chemistry: Basic Principles, Part 1 | Operators who work in process plants need to have a good understanding of the basic principles of chemistry, since processes often involve changes in the structure and composition of matter. This course will provide an introduction to chemistry, definitions of key terms, a review of compounds and mixtures, and an examination of solutions and how they are different from other mixtures. | 1 | Intermediate |
| Chemistry: Basic Principles, Part 2 | This course is designed to familiarize you with basic concepts associated with chemical reactions, material balancing, and organic chemistry. After completing this course, you should be able to use a chemical equation to explain what occurs during a chemical reaction, and explain how combustion reactions, replacement reactions, and neutralization reactions occur. You should also be able to explain what material balancing is and describe the basic steps involved in balancing the materials represented in a simple equation. In addition, you should be able to explain what organic chemistry is and how some organic chemicals are named. | 1 | Intermediate |
| Chemistry: Material Balancing | This course is designed to familiarize participants with basic concepts associated with using balanced chemical equations to calculate the amounts of reactants and products in process reactions. After completing this course, participants should be able to explain what material balancing is, verify that a chemical equation is balanced, and use a balanced equation to calculate the amounts of reactants and products in a reaction when the weight of one reactant is given. They should also be able to identify two basic factors that can limit the production of a process system, perform material balancing for a process system when reactant supply is the limiting factor, and perform material balancing for a system in which a specific amount of product is to be produced. | 2 | Intermediate |
| Chemistry: Reaction Rates | This course is designed to familiarize participants with basic concepts associated with the rates at which chemical reactions occur. After completing this course, participants should be able to describe two factors that determine the rates of reactions and describe the effects of temperature, pressure, concentration, and surface area on reaction rates. They should also be able to describe how catalysts affect reaction rates and how equilibrium reactions can be affected by temperature and pressure. | 2 | Intermediate |
| Circuit and Switch Basics | Electrical components are in many things we use on a daily basis, from lights, to computers, to electronic toothbrushes. Each of these devices includes one or more circuits. The basic components of a circuit are an energy source, a conducting material, and a load. In order for a circuit to be useful, it needs a method of control. This module will discuss circuits and how they can be controlled. | 0.25 | Intermediate |
| Circuits and Power | This course covers the four parts of an electrical circuit, as well as the differences between common circuit types including series, parallel, and combination circuits. This course illustrates electrical power and how to calculate it. Finally, it discusses power rating and power conversion and efficiency. | 0.25 | Intermediate |
| Clamps, Blades, Saws, and Bits | A number of projects, large and small, professional and amateur, require the use of basic tools, including clamps, saws, saw blades, and drills. Since these tools often come in a variety of styles, sizes, and purposes, knowing how to make the best choices is practical knowledge to have. This course will identify and describe the common types of clamps, saws, saw blades, and drills as well as safety guidelines for using them. | 0.5 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Clutch Basics | A clutch is a device that connects and disconnects a driving (input) shaft and a driven (output) shaft. Clutches are important for applications where the motor needs to be started before it is connected to the load or disconnected before it is stopped. There are many different types of clutches, each with advantages and disadvantages. The proper choice depends on the speed, torque, loading characteristics, and operating temperature of the application. | 0.25 | Intermediate |
| Compressed Air Fundamentals | Prepare yourself and your team to work safely with and around compressed air systems. Use this course to get a better understanding of the benefits and uses of compressed air. This course discusses the types of compressors (reciprocating, rotary screw, and centrifugal), the relationship between pressure, temperature and volume, gauge vs. absolute pressure, and air quality considerations. Additional topics include air cooling and drying as well as managing airborne, oil, and moisture contamination. | 0.5 | Intermediate |
| Compressed Air Systems | Compressed air systems are used in a variety of industries to supply process requirements, operate pneumatic tools and equipment, and to meet instrumentation needs. This course discusses compressed air system components, safety guidelines to follow while working with and around compressed air systems, common air compressor designs, compressed air conditioning systems, and air pressure and volume measurements. | 0.25 | Intermediate |
| Compressors and Pneumatic Tools | The purpose of this course is to teach the basic operating principles and general operating procedures for air compressors and the following pneumatic tools: jackhammers, tamps, pumps, circular air saws, and duct blowing rigs. The course shows how to use the tools efficiently for several construction and maintenance jobs. Emphasis is placed on the important safety precautions associated with using these tools. At the conclusion of this course, participants should have a basic understanding of how to operate an air compressor. They should also know how to use pneumatic tools safely and efficiently on a job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Compressors: Centrifugal and Axial | This course is designed to familiarize participants with basic concepts associated with the parts and operation of centrifugal and axial compressors. After completing this course, participants should be able to describe the main parts and the general operation of single-stage centrifugal compressors, multistage centrifugal compressors, and axial compressors. They should be able to describe the functions of compressor lubrication systems, seals, bearings, and common auxiliary devices. | 2 | Intermediate |
| Compressors: Operation of Centrifugal and Axial Types | This course is designed to familiarize participants with basic concepts associated with the startup, operation, and shutdown of centrifugal and axial compressors. After completing this course, participants should be able to describe the general functions of instrumentation and control devices used with centrifugal and axial compressors. They should be able to describe operator responsibilities associated with starting up, operating, and shutting down centrifugal and axial compressors. | 2 | Intermediate |
| Compressors: Positive Displacement | This course is designed to familiarize participants with basic concepts associated with the operation of positive displacement compressors. After completing this course, participants should be able to identify the main parts and describe the general operation of various types of reciprocating compressors and rotary compressors. They should also be able to describe operator responsibilities associated with starting up, operating, and shutting down compressors. | 2 | Intermediate |
| Condensate Recovery and Steam Traps | Whenever steam condenses in a process, it creates hot liquid condensate. It is the role of steam traps to remove condensate from steam lines and process equipment with a minimum loss of live steam. The condensate has economic value, so it is typically collected and reused. This module discusses the collection and re-use of condensate in a steam generation system. Three major classifications of steam traps are discussed, including their principles of operation, and their strengths and weaknesses. | 0.5 | Intermediate |
| Conductors | Running cables and conductors is an integral part of electrical maintenance. The topics covered in this course include how cables and conductors are classified, the factors that must be considered in selecting a conductor or cable for a particular application, and procedures for installing, splicing and terminating cables and conductors used in low-voltage applications. | 1 | Intermediate |
| Construction of AC and DC Circuits | This course will define series circuits and parallel circuits as well as series-parallel circuits. This course will also discuss resistance and current in each type of circuit. | 1 | Intermediate |
| Contactors and Relays | Contactors and Relays is a course designed to familiarize participants with the operation and use of magnetic contactors and relays. After completing this course, participants should be able to describe the operating principles of magnetic contactors and relays, and explain how both types of devices are used in electrical systems. They should also be able to describe the components and operation of low-voltage remote control switching systems. | 2 | Intermediate |
| Continuous Process: Field Devices: Analog Configuration | This course is designed to familiarize participants with basic procedures for configuring traditional and "smart" analog field devices. After completing this course, participants should be able to explain how to set zero and span and perform a calibration procedure on a traditional analog transmitter. They should also be able to explain the basics of how to configure a smart analog field device using a portable communicator or a laptop PC. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Analytical | This course is designed to familiarize participants with input field devices that perform online analyses. After completing this course, participants should be able to describe common applications and procedures that are associated with the use of online analyzers. They should also be able to describe some of the many different types of online analyzers that are used in continuous process systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Digital Configuration with a DCS | This course is designed to familiarize participants with basic procedures for using a distributed control system (DCS) to configure digital field devices. After completing this course, participants should be able to explain how to use the Honeywell TDC 3000 and the Fisher-Rosemount DeltaV to configure a digital field device. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Level and Flow | This course is designed to familiarize participants with input field devices that sense and monitor level or flow. After completing this course, participants should be able to describe the basic operation of various types of level measurement and flow measurement devices. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Pressure, Temperature, and Weight | This course is designed to familiarize participants with input field devices that sense and monitor temperature, pressure, or weight. After completing this course, participants should be able to describe the basic operation of various types of temperature, pressure, and weight transducers and transmitters. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Continuous Process: Field Devices: Using Field Communicators | This course is designed to familiarize participants with basic procedures for using field communicators to configure "smart" analog field devices. After completing this course, participants should be able to explain how to configure smart analog transmitters using a HART communicator, a Honeywell communicator, a Yokogawa communicator, and the Foxboro Local Display Module. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Multiple Loop Control | This course is designed to familiarize participants with the basic operation and use of multiple loop control. After completing this course, participants should be able to explain the basic operation of multiple single loops, cascade control, ratio control, feed-forward control, and special connections that are used with multiple loop control. They should also be able to use a piping and instrumentation diagram (P&ID) to trace boiler control functionally. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Pneumatic Controls | This course is designed to familiarize participants with the basic operation, maintenance, and calibration of components in a pneumatic control system. After completing this course, participants should be able to describe how to service the various devices that help dry and filter the air and how to check pressure control devices in the system for proper operation. They should also be able to describe the basic operation and maintenance of some typical control components in a pneumatic system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Principles | This course is designed to familiarize participants with some of the basic material, process, and system characteristics that can affect process control. After completing this course, participants should be able to identify and describe some basic factors that affect process control. They should also be able to describe common process control methods and the operation of loops that control critical process variables. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Single Loop Control | This course is designed to familiarize participants with the basic operation and use of single control loops. After completing this course, participants should be able to explain the basic operation of a feedback control loop, describe how the proportional-integral-derivative (PID) control algorithm works, and identify and describe features that may be used to enhance the performance of a PID controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Smart Controllers | This course is designed to familiarize participants with the operation and use of smart controllers. After completing this course, participants should be able to describe basic procedures for installing, configuring, operating, and tuning smart controllers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Troubleshooting DCS I/Os: Procedures | This course is designed to familiarize participants with basic procedures for troubleshooting the inputs and outputs of a distributed control system (DCS). After completing this course, participants should be able to explain how to gather information about a DCS I/O problem, identify possible causes of the problem, test the possible causes, and finish up the troubleshooting procedure. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Troubleshooting Loops | This course is designed to familiarize participants with basic procedures for troubleshooting control loop problems. After completing this course, participants should be able to explain how to use a systematic troubleshooting procedure to troubleshoot problems in control loops. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Tuning Loops | This course is designed to familiarize participants with the basic principles of tuning control loops. After completing this course, participants should be able to describe how to prepare for tuning a loop and how to tune a loop manually using a systematic trial and error method, the Ziegler-Nichols open loop method, and the Ziegler-Nichols closed loop method. They should also be able to describe how tuning can be accomplished by the auto-tune function, by artificial intelligence features, and by tuning software. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| ControlLogix®: Basic Programming | "The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs, including exceptional power and motion control.<br>This interactive online course will introduce you to the ControlLogix® program editor. The course provides an understanding of the program logic, Input and Output instructions, series and parallel instructions, ladder logic and tags. This course is designed to familiarize you with the functions, architecture, and software in use in the ControlLogix® PLC platform, providing you with basic skills that enable you to comfortably interact with the programming software and communicate with the PLC processor." | 0.5 | Intermediate |
| ControlLogix®: Communications and Advanced Programming | "Programmable Logic Controllers, or PLCs, are the brains behind much of the equipment that runs in manufacturing facilities, warehouses, and other industrial operations. These computers require specific programming for each industrial machine; therefore, it is necessary to understand the logic behind the programming for each task.<br>This interactive online course provides information on basic communication instructions for ControlLogix® PLCs and will also discuss more advanced programming techniques using program instructions, including bit, timer/counter, and compare instructions, as well as move/logical, math conversion, and program control instructions." | 0.5 | Intermediate |
| ControlLogix®: Configuring Hardware and Software | "The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs, including better power and motion control.<br>This interactive online course will allow you to gain a solid understanding of hardware, software and communication concepts inherent to ControlLogix®'s RSLogix5000 ladder logic programming software.<br>This course is designed for technicians, maintenance personnel or engineers who want to improve maintenance and troubleshooting skills in order to minimize machine downtime.<br>This course will introduce you to tasks involved in creating a project and the steps involved to establish communications and download a project to the controller. This course also discusses how to create new file menus to enable the user to configure the projects created." | 0.5 | Intermediate |
| ControlLogix®: Introduction to Basic System, Software & Hardware Components | The ControlLogix® series of programmable logic controllers are the PLC's of the future. The smallest controller has advanced capabilities above existing PLC's. They have more computing power and handle motion control better. Progressive companies that are planning for advancing their process are changing to the ControlLogix series. Rockwell Automation is leading industry's advancing technology requirements. | 0.5 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| ControlLogix®: The Project Structure | "The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs with greater computing power and motion control.<br>The purpose of this interactive online course is to provide an understanding of the ControlLogix® project structure and PLCs. This course reviews the basic elements of a project and explains the functionality of each element, as well as introducing the tools which are used to generate programs or projects for ControlLogix® PLCs using Rockwell Automation's RSLogix 5000®." | 0.5 | Intermediate |
| ControlLogix®: Troubleshooting | "Downtime is extremely costly in today's industry. Even when using preventative maintenance and other techniques to eliminate downtime, failure will still occur.<br>This interactive online course will introduce you to ControlLogix troubleshooting process, and the tools used for troubleshooting controller faults and input/output modules.<br>The course will teach how to find and clear faults both manually and through the controller. Being able to quickly and accurately troubleshoot a programmable logic controller system, or "PLC," is a vital skill for all maintenance technicians." | 0.5 | Intermediate |
| Conveyor Belt Replacement | Belt conveyors are used in manufacturing and industrial environments to move materials from one location to another. Conveyors can reduce workloads and make production more efficient. They can also prevent injuries that result from carrying materials manually. After time however, they become worn and must be replaced. This course will discuss the steps necessary to remove and replace conveyor belts. | 0.25 | Intermediate |
| Conveyor Types and Components | Hundreds of conveyor types are used in manufacturing and industrial environments to move materials from one location to another. Conveyors can reduce workloads and make production more efficient. They can also prevent injuries that result from carrying materials manually. Different material handling systems require different conveyor types to move products or raw materials effectively. This module will discuss common components of conveyors as well as specific conveyor types and their uses. | 0.25 | Intermediate |
| Core: Principles of Calibration | This course is designed to familiarize participants with the basic principles associated with the calibration of input field devices and control loops. After completing this course, participants should be able to explain how to test, adjust, and calibrate various types of gauges and transmitters. They should also be able to explain how to test, set up, and adjust input field devices and calibrate control loops. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Current, Voltage, and Resistance | "Electricity is a form of energy, and when considering circuits, electricity is defined as a flow of electrons. The flow of electrons is called current. Current flow occurs under the influence of a charge difference that is called voltage. Resistance is the tendency of a component to hinder the flow of current.<br><br>This course briefly reviews the aspects of atomic structures that allow the flow of electricity and then describes the relationship between current, voltage and resistance in an electrical circuit." | 0.25 | Intermediate |
| Databases, Spreadsheets, and Word Processing | A database program assists in managing large collections of information. A database makes it easy to store, sort, and maintain information. This course will discuss database design, reports, spreadsheets, word documents, and toolbars. | 0.25 | Intermediate |
| DC Fundamentals Review | The fundamental relationships between current voltage and resistance in direct current (DC) circuits are basic to understanding all types of electricity and electrical circuitry. This course is intended as a general review of basic electrical concepts and circuit analysis for participants already possessing some background in electrical theory. | 1 | Intermediate |
| DC Generator Basics | A simple direct current (DC) generator consists of an armature coil with a single turn of wire. The armature coil cuts across the magnetic field to produce a voltage output. This course describes commutation in a DC generator, the major parts of a DC generator, and three basic ways a DC generator can be constructed. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 1 | This course provides participants with an introduction to direct current (DC) motor controller classification and parts identification, controller diagram symbols and schematics, and how DC motor controllers change motor speed and direction. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 2 | This course introduces participants to the basic steps for troubleshooting a direct current (DC) motor controller, different types of controller diagrams and how to read them, methods for identifying mechanical problems, and the maintenance needed to prevent or correct these problems. | 1 | Intermediate |
| DC Motor Maintenance | Anyone who is responsible for maintaining direct current (DC) motors in an industrial facility has to have a thorough understanding of the specific techniques and procedures that are used to keep DC motors in top operating condition. Familiarity with the ways that DC motors operate and the methods used to classify and identify them is also important. To help prepare electrical maintenance personnel for working on DC motors, this course contains specific information covering DC motor operation and classification as well as detailed descriptions of procedures for troubleshooting, disassembling, inspecting, and reassembling a typical DC motor. | 1 | Intermediate |
| DC Motor Operation | A DC motor is an electrical device powered by direct current, or DC. DC is a type of electrical current that flows in one direction only, from sources such as batteries or solar panels. DC may also be produced through the use of a rectifier, which is an electrical device that converts alternating current (AC) to DC. Although motor designs may vary, all DC motors perform the same basic function. They convert electrical energy into mechanical energy to spin, lift, wind, or move objects. | 0.25 | Intermediate |
| DC Motor Types | DC motors are electrical motors powered by direct current, or DC. DC is a type of electrical current that flows in one direction only, from sources such as batteries or solar panels. DC may also be produced through the use of a rectifier, which is an electrical device which converts alternating current (AC) to DC. This module will describe the design, operation, and applications of series, shunt, compound, permanent magnet, and separately excited motors. | 0.25 | Intermediate |
| Delivery Truck Maintenance | "Many businesses depend heavily on their fleet of vehicles. In some businesses, such as package or propane delivery, or taxis, the fleet really is the business. In other cases, such as trades like electricians and plumbers, the vehicle is somewhat secondary to the actual job being performed, but no less important. In order for businesses which rely on vehicles to thrive, those vehicles which make up the fleet need to be able to operate safely and properly as close to 100% of the time as possible." | 0.5 | Intermediate |
| Diagrams: Blueprints | This course is designed to familiarize participants with the basic features of construction blueprints. After completing this course, participants should be able to describe various types of blueprints, identify lines, symbols, and abbreviations that are commonly found in blueprints, and explain how to properly care for blueprints. | 2 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Diagrams: Industrial Process Systems | This course is designed to introduce participants to plant system diagrams and diagram symbols. After completing this course, participants should be able to identify and describe the purpose of several kinds of system diagrams, and describe the information found on each type. Participants should also be able to identify symbols commonly used on piping and instrumentation diagrams (P&IDs), describe the types of information typically found on a legend, and use a P&ID to locate the components of a system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Diagrams: Piping and Instrumentation | This course is designed to familiarize participants with the use of piping and instrumentation diagrams (P&IDs). After completing this course, participants should be able to describe the kinds of information that can be found on a P&ID and explain why this information is useful. They should also be able to explain how to use P&IDs to troubleshoot system problems. | 2 | Intermediate |
| Digital Multimeters and Troubleshooting | "A digital multimeter is a single instrument that is capable of measuring voltage, current, and resistance, so it is useful for troubleshooting electrical circuits and equipment. Voltage measurements can be made between any two arbitrary points in a circuit or relative to a single absolute ground point. Either method can be used to isolate component performance problems within a circuit. Current measurements with a multimeter require incorporating the meter into a circuit, so they are more difficult to make. Voltage and current measurements require that a circuit be energized. Resistance measurements require that the power be off and the tested component isolated from the rest of the circuit." | 0.5 | Intermediate |
| Diodes and Semiconductor Basics | A diode is simply the main building block of semiconductors. It's a small electronic device that limits current flow to one direction. This course covers types of diodes, how to identify diodes, transistor construction, types of transistors, and atomic theory of semiconductors. | 0.5 | Intermediate |
| Direct and Alternating Current | Most electric power is generated and consumed in the form of alternating current (AC), and most meters that measure energy consumption are designed to measure AC power. Many of the principles associated with direct current (DC) circuits also apply to AC circuits. This course describes variations that account for differences between DC power and AC power. | 1 | Intermediate |
| Distributed Control Systems Introduction | Distributed control systems(DCS) are used in a variety of industries for numerous applications. Whether you are working with pharmaceuticals, food and beverage, or mining operations, this course provides a brief overview of the different components and variations of typical distributed control systems. This information can be applied to almost anyone's particular field where these systems are being used. | 1 | Intermediate |
| Efficient Pump Operation | This course is designed to teach participants how pumps in generating units can be operated efficiently. After completing this course, participants should be familiar with pump operating characteristics such as capacity, head, power, efficiency, and minimum net positive suction head. They should understand how these characteristics can be plotted and read on pump curves, and how pump curves can be used. In addition, they should be able to describe the effects of multiple pump operation and low flow on pump efficiency. | 1 | Intermediate |
| Electric Motor Basics | Electric motors are key components of many consumer products and industrial processes, from kitchen mixers to pump motors generating thousands of horsepower. This course describes the operation and common uses for AC motors, DC motors, servomotors, and linear motors. | 0.5 | Intermediate |
| Electrical 1: Cable Tray | Cable Tray is a course designed to familiarize participants with cable tray components and installation techniques. After completing this course, participants should be able to identify the types of sections and the types of fittings used in cable tray assemblies, explain how cable tray is supported, and explain how cable tray sections are spliced. They should also be able to size cable tray for specific numbers and types of conductors. | 2 | Intermediate |
| Electrical 1: Commercial and Industrial Wiring | This course is designed to familiarize participants with wiring devices and wiring techniques used at commercial and industrial sites. After completing this course, participants should be able to identify various types of switches, enclosures, control devices, and receptacles. They should also be able to describe basic techniques for planning and installing branch circuits, mounting boxes, and working with conductors. | 2 | Intermediate |
| Electrical 1: Electrical Diagrams | This course is designed to familiarize participants with various types of electrical diagrams. After completing this course, participants should be able to explain why symbols are used on electrical diagrams, and how to obtain information from a title block and an equipment location index. They should also be able to explain how to use each of the following types of diagrams: block, single line, schematic, wiring, connection, interconnection, and raceway. | 2 | Intermediate |
| Electrical 1: Electrical Safety | The purpose of this course is to give participants a general understanding of basic principles of electricity and electrical safety. At the conclusion of this course, participants will have a basic understanding of various aspects of working safely around electrical equipment. | 2 | Intermediate |
| Electrical 2: Boxes and Fittings | Boxes and Fittings is a course designed to familiarize participants with various types of boxes and fittings used in electrical installations. After completing this course, participants should be able to identify different types of boxes and explain how to properly size outlet boxes, pull boxes, and junction boxes. They should also be able to identify different types of couplings, locknuts, and bushings, and explain what seal-off fittings are and how they are installed. In addition, they should be able to describe the three classes of hazardous locations that are identified in the National Electrical Code® (NEC®) and describe requirements for safely installing boxes and fittings in hazardous locations. | 2 | Intermediate |
| Electrical 2: Circuit Breakers and Fuses | Circuit Breakers and Fuses is a course designed to familiarize participants with the use of overcurrent protective devices in electrical installations. After completing this course, participants should be able to describe hazards associated with faults and overloads, describe the operation and common types of circuit breakers and fuses, and describe basic procedures for troubleshooting problems with circuit breakers and fuses. | 2 | Intermediate |
| Electrical 2: Electrical Lighting | Electric Lighting is a course designed to familiarize participants with various types of lamps and lighting fixtures and how install them. After completing this course, participants should be able to explain how the human eye sees and describe the characteristics of light. They should also be able to compare and contrast various types of lamps, and they should be able to explain how to install various types of light fixtures. | 2 | Intermediate |
| Electrical 2: Grounding | Grounding is a course designed to familiarize participants with both system grounding and equipment grounding. After completing this course, participants should be able to describe different types of grounding, describe National Electrical Code® (NEC®) requirements associated with system grounding, and describe how to size and install grounding electrode conductors. They should also be able to describe NEC requirements associated with equipment grounding, describe how to size equipment grounding conductors and bonding jumpers, and explain how to make sure that a grounding system is effective. | 2 | Intermediate |
| Electrical 2: Installation of Electrical Services | Installation of Electric Services is a course designed to familiarize participants with considerations associated with installing a commercial or industrial electric service. After completing this course, participants should be able to describe various types of electric services for commercial and industrial installations, and they should be able to identify and describe the main components of those services. They should also be able to explain how to select and install equipment for a single-phase service and a three-phase service. | 2 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical 2: Motors: Theory and Application | This course is designed to familiarize participants with the operation and use of various types of electric motors. After completing this course, participants should be able to describe the basic construction and operation of direct current (DC) motors, alternating current (AC) induction motors, and AC synchronous motors. They should also be able to explain how motor speed can be controlled and how motors and motor circuits can be protected from damage, and they should be able to interpret the information on a motor nameplate. | 2 | Intermediate |
| Electrical Drawings and Schematics | This course discusses recognizing electronic symbols, integrated circuits, and logic symbols. It also covers electronic schematics and the difference between logic and digital diagrams. | 0.25 | Intermediate |
| Electrical Equipment: AC and DC Motors | This course is designed to familiarize participants with basic concepts associated with the operation of electric motors. After completing this course, participants should be able to explain the basic principles of motor operation and describe the basic operation of a simple alternating current (AC) motor and a simple direct current (DC) motor. They should also be able to identify the parts of a typical AC motor and a typical DC motor, and describe the function of each part. | 2 | Intermediate |
| Electrical Equipment: Electrical Production and Distribution | This course is designed to familiarize participants with basic concepts associated with the production and distribution of electric power for use by process systems. After completing this course, participants should be able to explain, in general terms, how off-site power comes into a plant and how a plant can generate power on site for its own use. They should also be able to identify and explain the functions of the major components in an electrical distribution system. In addition, participants should be able to describe general hazards associated with these systems and explain how the possible effects of the hazards can be minimized. | 2 | Intermediate |
| Electrical Equipment: Motor Controllers and Operation | This course is designed to familiarize participants with basic concepts associated with what motor controllers do and how they do it. Typical steps for starting up, checking, and shutting down motors are also covered. After completing this course, participants should be able to explain how motor controllers control and protect motors. They should also be able to describe how to start up a motor, perform operating checks on a motor, and shut down a motor. | 2 | Intermediate |
| Electrical Installations 1: Electrical Laws, Components and Circuits | "The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter"s Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time." | 1 | Fundamental |
| Electrical Maintenance: Battery Systems | This course is designed to introduce participants to industrial battery systems, battery cells, and how to inspect and test batteries. After completing this course, participants should know the characteristics and basic operation of a typical battery system and its components. They should also understand how to inspect and perform basic tests on industrial batteries. | 2 | Intermediate |
| Electrical Maintenance: Fasteners | This course is designed to familiarize participants with various types of fasteners used in electrical work. After completing this course, participants should be able to describe common types of threaded and non-threaded fasteners and identify applications for which each type might be used. They should also be able to describe basic procedures for installing fasteners. | 2 | Intermediate |
| Electrical Maintenance: Introduction to the NEC | This course is designed to familiarize participants with the organization and layout of the National Electrical Code® (NEC®). After completing this course, participants should be able to use the NEC to locate specific types of information. | 2 | Intermediate |
| Electrical Maintenance: Relays, Part 1 | The purpose of this unit is to teach the basic principles of protective relays and to introduce directional and non-directional relays. The unit begins with the basic theory of protective relays, commonly used types of relays, and a brief explanation of how these relays are used. Additional details and examples of applications are provided for directional and non-directional relays. At the conclusion of this unit, the trainees should have a basic understanding of how protective relays work. They should be able to explain the need for protective relays and to list commonly used types of relays and their functions. They should also be able to explain how directional and non-directional relays work and give examples of situations in which they are used. | 1 | Intermediate |
| Electrical Maintenance: Relays, Part 2 | The purpose of this unit is to continue the development begun in Relays, Part 1 by introducing differential and pilot relays and discussing routine relay maintenance. The relays examined are differential relays and pilot relays used for differential comparison, phase comparison, and transfer tripping. The unit demonstrates how to inspect and maintain relays and how to put them in and out of service. At the conclusion of this unit, trainees should be able to explain how differential and pilot relays work and give examples of situations where they are used. They should also be able to describe how to approach routine inspection and maintenance and how to put a relay in or out of service. | 1 | Intermediate |
| Electrical Maintenance: Troubleshooting Electrical Circuits | This course is designed to familiarize participants with the use of basic troubleshooting procedures to troubleshoot problems in electrical circuits. After completing this course, participants should be able to identify and describe the main steps of a basic troubleshooting procedure and use the procedure to troubleshoot problems in electrical equipment and electrical systems. | 2 | Intermediate |
| Electrical Meters and Measurements | "A digital multimeter is a single instrument that is capable of measuring voltage, current and resistance. A digital multimeter is an indispensable general-purpose tool for troubleshooting electrical problems. There are other dedicated test instruments, which in various ways, go beyond the capabilities of the multimeter.<br><br>This module describes the typical features and usage of digital multimeters, as well as those of voltage detectors, clamp ammeters, megohmeters, digital thermometers and oscilloscopes." | 0.5 | Intermediate |
| Electrical Soldering | "Soldering is a technique for joining two pieces of metal together by melting and flowing a filler metal into the area where the pieces are to be joined. The filler metal, or solder, is an alloy that melts at a lower temperature than the pieces being joined.<br><br>Soldering is commonly used in electronics, plumbing, certain types of metalwork, and jewelry. This module will focus primarily on soldering as applied to electronics, including the composition of different solders, the role of flux, joint preparation and proper soldering technique." | 0.5 | Intermediate |
| Electrical Switches | An electrical switch is any device used to interrupt the flow of electrons in a circuit. This course begins with an overview of switches, then describes several types of common switches, and ends with common switch contact designs. | 0.25 | Intermediate |
| Electrical Systems | This course explains the basic components of an electrical distribution system, its function, and typical monitoring and protective equipment in the system. | 1 | Intermediate |
| Electrical Systems and Equipment, Part 1 | This course focuses on three of the major components in an electrical system: unit transformers, switchyards, and substations. This course also describes how these components fit into an electrical system, how they operate, and how they are checked to make sure they continue to operate properly. | 1 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical Systems and Equipment, Part 2 | Electrical power systems deliver electricity to customers and to the plant. This course teaches how electrical power systems deliver electricity to customers and how electrical power systems adjust voltage and current for more economical power delivery. It also shows how electrical power systems deliver electricity to plant equipment and how the station service system can help ensure a continuous flow of power to the plant in the event of certain equipment malfunctions. Finally, it describes the essential service system, which helps operators maintain control during an emergency. | 1 | Intermediate |
| Electrical Wiring and Connections | "One of the greatest benefits of electricity is its ability to transfer energy from where it is generated to where it is needed. Electrical wires, cables and cords are used to accomplish the transfer. Electrical wiring consists of a conductive material such as copper surrounded by an insulating material such as thermoplastic.<br><br>The primary dangers associated with the distribution of electric power are electrocution and the generation of heat. These hazards must be considered when laying out and connecting all types of wiring. " | 0.5 | Intermediate |
| Electrical Wiring: Cables and Conductors | This course is designed to familiarize participants with the basic construction and installation of electrical cables and conductors. After completing this course, participants should be able to describe the basic construction of cables and conductors, and describe how conductors are classified and rated. They should also be able to describe factors that affect the installation of a conductor for a specific application, and describe how to make splices and terminations. | 2 | Intermediate |
| Electrical Wiring: Conduit Installation | This course is designed to familiarize participants with the basic concepts of conduit and conduit fittings, and typical methods of cutting, bending, and installing conduit. After completing this course, participants should be able to describe the basic types of metallic and nonmetallic conduit, describe common types of conduit fittings, and describe procedures for cutting, bending, and installing metallic and nonmetallic conduit. | 2 | Intermediate |
| Electrical Wiring: Splices and Terminations | This course is designed to familiarize participants with common types of hardware and accessories used in making electrical splices and terminations, and how to prepare for and make various types of connections. After completing this course, participants should be able to identify basic types of terminals, connectors, tools, and materials used in making splices and terminations, and describe the applications for which they are suitable. They should also be able to describe how to make some common types of electrical splices and conductor terminations. | 2 | Intermediate |
| Electromagnetic Induction | Voltage applied to a conductor creates a magnetic field around that conductor. It is possible to reverse this process and for a magnetic field to generate a voltage in a conductor. For this to occur, there must be some relative motion between the conductor and the magnetic field. Electromagnetic induction takes place whenever a conductor moves through a magnetic field or when a magnetic field moves across a conductor. The voltage inducted in the conductor is called electromotive force. If the conductor is connected in a complete circuit, a current will flow. This module covers the definition of electromagnetic induction, voltage generators, the left hand rule, solenoids, relays, and transformers. | 0.25 | Intermediate |
| Electromagnetic Relays | When a fault occurs, current increases and voltage decreases. The increased current causes excessive heating, which depending on where the fault occurs, can result in a fire or an explosion. If the fault is not quickly isolated, it can cause damage that may result in loss of service. Various types of control systems are used to detect and isolate faults with minimum disturbance. A key component of all of these control systems is the protective relay. This course examines the functions and operation of some types of protective relays. | 1 | Intermediate |
| Equipment Drive Components: Gear, Belt, and Chain Drives | This course is designed to familiarize participants with basic concepts associated with the operation of gear drives, belt drives, and chain drives. After completing this course, participants should be able to describe the general function of gear drives, belt drives, and chain drives, and explain how each of these equipment drive components operates to transfer power from a driver to a piece of driven equipment. They should also be able to describe operator checks that are commonly performed on gear drives, belt drives, and chain drives. | 2 | Intermediate |
| Equipment Lubrication: Using Lubricants | This course is designed to familiarize participants with some of the methods and devices used to lubricate equipment components such as bearings. After completing this course, participants should be able to describe the use of hand grease guns, pneumatic grease guns, grease cups, and centralized lubricators. They should also be able to describe the basic operation of drip-feed oilers, oil baths, bottle oilers, ring oilers, and circulating oil systems. In addition, participants should be able to describe the use of contact seals, labyrinth seals, and mechanical seals, and to describe how valve packing is lubricated. | 2 | Intermediate |
| Equipment Maintenance and Reliability | Defines equipment maintenance, and discusses its importance and benefits. Also covers some safety and work guidelines related to performing equipment maintenance. | 0.25 | Intermediate |
| ESD Precautions | This course covers the principles of electrostatic discharge and the necessary precautions that should be taken to avoid damage to sensitive equipment. | 1 | Intermediate |
| Essentials of Lean Manufacturing | What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to "think Lean" and apply Lean methods and tools to improve the quality and efficiency of your company. | 1 | Intermediate |
| Essentials of Six Sigma | Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, it's management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently. | 0.75 | Intermediate |
| Fans | Many processes and systems in an industrial facility require the movement of air or other gases. Air movement is important in applications such as heating and cooling, pollution control, combustion, and ventilation. One of the most common ways to move air and other gases in a controlled manner is with fans. This course identifies the major components of fans and describes the operation of various types of fans. The operator's role in keeping fans working properly is also examined. | 1 | Intermediate |
| Fastener Basics | Devices that are used to connect two or more objects together mechanically, are called "fasteners." There are countless types of mechanical fasteners, and each one is specifically designed for a particular application. This module will identify and describe screw types, identify and describe bolt types, and describe how to use a torque wrench. | 0.25 | Intermediate |
| Flow, Level, and Pressure Sensors | Flow measurement devices, or flow sensors, measure the volume of a liquid or gas that passes through a container in a given amount of time. This course discusses the common flow, level, and pressure sensor designs as well as defines common industry terms such as turndown ratio, psi, and atmospheric pressure. | 0.5 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fluid Flow Measurement, Part 1 | This course covers fundamental information pertaining to the way in which differential pressure measurements can be used to determine fluid flow. Most plants contain miles of piping that provide for the efficient transportation of fluid from one location to another. In some cases, the flow of fluid through a pipe must be measured in order to ensure that equipment is lubricated or that a certain mass or volume of fluid is present at a given time and place. There are several methods that can be used to measure the rate at which a fluid flows through a pipe. One commonly used method is to measure fluid flow in terms of differential pressure, which is the difference between two related pressures in a system of flowing fluid. This course covers fundamental information pertaining to the way in which differential pressure measurements can be used to determine fluid flow. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fluid Flow Measurement, Part 2 | The flow of fluids is an important aspect of many industrial processes. Fluid flow through industrial systems is often measured by flow meters. Instrument technicians are generally responsible for installing, calibrating, and repairing the flow meters in their facilities. In order to perform these tasks efficiently and effectively, instrument technicians must be able to identify various types of flow meters, and they must understand how the meters measure fluid flow. This course focuses on the following types of flow meters: oval gear flow meters, lobed impeller flow meters, nutating disc flow meters, rotameters, cylinder and piston flow meters, weirs, target meters, turbine meters, vortexshedding meters, magmeters, and ultrasonic meters. The course also includes a discussion of how integrators can be used in measuring the total flow of a fluid. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Forklifts: Operation | This course is designed to familiarize participants with the basic design and operation of forklifts. After completing this course, participants should be able to describe how forklifts can be classified and identify the major features and common working dimensions of a forklift. They should also be able to explain how to inspect a forklift, how to recharge or refuel a forklift, and how to operate a forklift safely. | 2 | Intermediate |
| Fundamentals of Process Solubility | This course examines the basic concepts that relate to the processing of certain kinds of mixtures. Industrial applications of these concepts are also presented. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fuses | This course introduces participants to the basic components of various types of fuses, explains how fuses are rated and sized, and describes basic procedures for troubleshooting a cartridge fuse. | 1 | Intermediate |
| Gear Drive Basics | Gears are mechanical devices, designed with teeth specifically shaped to minimize wear, vibration, and noise, while also maximizing a power transmission's efficiency. They are able to reverse the direction of rotation, change the speed of rotation, and transfer rotation to a different axis. This course will describe the purpose, types, performance, and applications of gears. | 0.25 | Intermediate |
| Gears - Overhaul | The purpose of this course is to provide participants with an overview of gearbox disassembly and reassembly. Replacing damaged gearbox components is an important part of a maintenance technician's job. Understanding how to safely and properly disassemble and reassemble a gearbox is essential to any gearbox repair or overhaul. At the completion of this course, participants will be able to describe checks, measurements, and installation procedures for gearboxes. | 1 | Intermediate |
| Gears - Types and Characteristics | Gears are found in many types of equipment in industrial facilities. They are vital components, and a gear problem can cause a whole operation to come to a complete stop. This course covers what gears are, how they work, and different types found within industry. It also provides an overview of problems that may affect gears and how to prevent them. | 1 | Intermediate |
| General Troubleshooting Strategies | Effective troubleshooting uses various techniques to diagnose and fix problems. A series of logical steps will help to speed up the troubleshooting process. Rarely will simply guessing potential solutions for a problem work (or it may provide only a quick fix). There are five steps in the troubleshooting process. This course will discuss these five steps in detail. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Datum Selection and Interpretation | When using geometric dimensioning and tolerancing (GD&T) to describe a part, you often need to specify the orientation or location of a part feature with reference to other features on the part. From the perspective of a designer, two things must be kept in mind. First, you must communicate to the manufacturer or inspector how to treat imperfect features when making or measuring a part. Second, you must communicate the functional intent of the part. In this interactive, online course, you will explore datum selection and notation so you can learn to communicate these requirements. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Form and Size Tolerances | Geometric dimensioning and tolerancing (GD&T) is a symbolic language used to communicate the allowable variation within a product assembly and standardizes variations in measurement. Size tolerances define the allowable variation in the size of a feature, while form tolerances describe the allowable variations in the contours of features and surfaces on a part. In this interactive, online course, we will discuss size tolerances, and form tolerances, as well as cylindricity, and circularity. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Introduction | GD&T is a symbolic language that is used to accurately describe mechanical parts and to define the allowable deviations in size, form, and location for each feature, in a manner that allows the greatest flexibility for the manufacturer, while ensuring that the part will function as intended. This interactive, online course provides an introduction to GD&T fundamentals and basic notations. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Orientation Tolerances | "In Geometric Dimensioning and Tolerancing (GD&T), an orientation tolerance is used to control the parallelism, perpendicularity, or angularity of a part feature with respect to a frame of reference (defined by the datum references). This interactive, online course discusses the three different types of orientation tolerances: Parallelism, Perpendicularity, and Angularity and how they are communicated in GD&T." | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Position Tolerances | GD&T position tolerances and dimensions define where features are located on a part with respect to other features. Position tolerances are typically used on holes, pins, tabs, slots, and other features of size. They are particularly useful when dealing with patterns of holes. This interactive, online course will discuss the use of GD&T for positional tolerances. It will also discuss bonus tolerance and functional gauges, as well as special considerations for positional tolerances. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Profile and Runout Tolerances | Profile tolerances are typically used on irregular surfaces where flatness and position tolerances are insufficient to describe the part requirements. Runout tolerances are typically applied to rotating parts to maintain the form and location of features with respect to their bearing surfaces. This interactive, online course will show you how to properly apply and interpret profile tolerances for both surface and line elements, how to reference datums and apply basic dimensions to describe features, and how to use composite profile tolerances to reflect specific feature requirements. | 0.25 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Ground Fault Circuit Interrupters | Normally, electric current is designed to flow through circuits at levels predetermined to be safe and return to the power source. Occasionally, conditions are created where the current amount or path is altered from the specified design. This course describes differences in the types of abnormal current flow that can occur within an electrical circuit because of the altered conditions and how ground fault circuit interrupters can protect against electrical shock. | 1 | Intermediate |
| Grounding | Grounding is the chief means of protecting life and property from electrical hazards such as lightning, line surges, short circuits, and ground faults. Grounding also helps ensure the proper operation of a system. This course provides an overview of what grounding is, why it is necessary, and effective grounding techniques. | 1 | Intermediate |
| Hand and Power Tools | The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines. | 0.38 | Intermediate |
| Hand Tools for Electrical Work | "Electrical work requires the use of hand tools. Possessing the correct tools and the knowledge of how to use them correctly and safely is essential in order to successfully accomplish a job.<br><br>The term electrical work encompasses a variety of jobs which involve the use of a range of different tools. Within that range are a basic set of tools that are used by both apprentice and accomplished electricians alike. It is this set of basic tools that will be introduced in this module. " | 0.5 | Intermediate |
| Hand Tools, Part 1 | Hand tools are used every day in construction, manufacturing, and industrial settings as well as for do-it-yourself projects at home. Hand tools can make it safer and easier to do many different kinds of jobs. This course discusses the proper use and general care of a wide variety of hand tools. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hand Tools, Part 2 | Maintenance mechanics work with a variety of hand tools to perform many jobs, so it is important for mechanics to understand the function and care of common hand tools. Mechanics should know how to select the correct tool for any given job and how to use tools efficiently and safely. This course discusses the proper use and general care of pliers, vises, clamps and punches. | 1 | Intermediate |
| Heat Exchanger Basics | Heat exchangers are typically used to transfer heat between fluids using conduction, convection, and radiation. This course details the three heat transferring methods used by heat exchangers as well as how heat exchangers are classified. It also illustrates common heat exchangers types such as shell-and-tube, plate, extended surface, and regenerative heat exchangers. | 0.25 | Intermediate |
| Heat Exchangers: Condensers and Reboilers | There are many different types of shell-and-tube heat exchangers, and each one is designed to accomplish a specific function in a process. In this interactive, online course, you will explore condensers and reboilers, two shell-and-tube heat exchangers that are designed to do specific jobs. | 0.5 | Intermediate |
| Heat Exchangers: Cooling Towers | "In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons,<br>it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling<br>tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower." | 0.5 | Intermediate |
| Heat Exchangers: Operation of Shell and Tube Types | "Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger. " | 0.5 | Intermediate |
| Hot Metal Cutting Processes | Hot metal welding and cutting has been around for a long time, however, up until recently the applications were limited because generally the parts requiring welding had to be heated in a stationary fire or furnace. This course will briefly cover four of the major heat-based techniques for cutting or removing metal. This will include the principles and equipment used oxyacetylene cutting, air carbon arc cutting, plasma cutting, and laser cutting. | 0.5 | Intermediate |
| HVAC - Heating and Cooling | HVAC systems are used to maintain clean, conditioned air in enclosed spaces. The term "conditioned" refers to the fact that the temperature and humidity of the air are maintained within desired ranges. This module describes the two most common cooling systems as well as heating devices used in HVAC systems. | 0.5 | Intermediate |
| HVAC - Hot Water and Ventilation | The purpose of heating, ventilation, and air conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial, and industrial facilities. This module contains information on hot water heating systems, air distribution systems, and HVAC control systems. | 0.5 | Intermediate |
| HVAC Basics | The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and allow temperature- or humidity- sensitive equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This module will identify safe work practices to use when working around HVAC systems and the most common HVAC system components. | 0.25 | Intermediate |
| HVACR Type I Certification | Type I certification requires that technicians know how to safely and properly evacuate refrigerants from "small appliances" containing 5 pounds or less of refrigerant using the appliance's compressor, system pressure, or self-contained recovery equipment. This interactive online course will cover these evacuation procedures, as well as how to deal with contaminants in a system and safety considerations. | 0.5 | Intermediate |
| HVACR Type II Certification | Did you know HVAC and Refrigeration technicians who maintain, service, repair, or dispose of medium, high, and very high pressure appliances containing more than five pounds of a controlled refrigerant must pass the EPA's Section 608 Type II certification exam? Type II certification requires that technicians understand several topics related to these systems, including leak detection, leak repair, evacuation requirements, recovery techniques, refrigeration, and safety. This interactive online course will cover the appliances included in the EPA Section 608 Type II certification exam, explain the techniques that are used to recover refrigerants, list evacuation requirements, and cover safety considerations for working with or around refrigerants, recovery equipment, and HVAC and Refrigeration systems | 0.5 | Intermediate |
| HVACR Type III Certification | Did you know Type III appliances differ from Type II appliances in that they operate in a vacuum on their low-pressure sides and sometimes on their high-pressure sides, which affects what happens when they develop a leak? When a Type III appliance develops a leak in a location that is under vacuum, air and/or moisture leaks in. In this interactive online course, we will cover the EPA 608 Type III certification exam, the techniques that are used to recover refrigerant, evacuation requirements and safety considerations for working with or around refrigerants. | 0.5 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hydraulic System Basics | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course is an introduction to hydraulic systems and their uses. It covers hydraulic theory, common components, what mechanical advantage is, and how hydraulic fluid is contaminated. | 0.25 | Intermediate |
| Hydraulic System Equipment | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course covers the purpose and function of the major equipment used in a typical hydraulic system. | 0.25 | Intermediate |
| Hydraulic System Valves and Components | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course covers the purpose and function of the valves and various components used in a typical hydraulic system to control pressure, transmit fluid, and filter contaminants. | 0.25 | Intermediate |
| Hydraulics: Actuators | This course is designed to familiarize participants with the various types of actuators that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of single-acting cylinders, double-acting cylinders, vane motors, gear motors, piston motors, and partial rotation actuators. | 2 | Intermediate |
| Hydraulics: Component Inspection and Replacement | This course is designed to familiarize participants with typical procedures for removing, inspecting, reassembling, and reinstalling hydraulic system components. After completing this course, participants should be able to describe how to remove, inspect, reassemble, and reinstall hydraulic valves, pumps, and cylinders. | 2 | Intermediate |
| Hydraulics: Diagrams | This course is designed to familiarize participants with hydraulic system schematic diagrams. After completing this course, participants should be able to interpret symbols that are used on hydraulic system schematic diagrams and use schematic diagrams to trace fluid flow through various types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Fluid and Reservoirs | This course is designed to familiarize participants with the fluid used in hydraulic systems and with the basic functions and uses of filters and strainers, reservoirs, conductors, and accumulators. After completing this course, participants should be able to describe the functions, characteristics, and types of fluid that may be used in hydraulic systems. They should also be able to describe typical uses of filters and strainers, describe the components and accessories of typical reservoirs, describe various types of conductors and fittings, and describe the basic functions and common uses of accumulators in hydraulic systems. | 2 | Intermediate |
| Hydraulics: Principles and Circuits | This course is designed to familiarize participants with the principles of hydraulic system operation and with the components and operation of some typical hydraulic circuits. After completing this course, participants should be able to explain how force is transmitted through a liquid and how pressure and flow are related in a hydraulic system. They should also be able to describe the main components and basic operation of several types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Pumps | This course is designed to familiarize participants with the various types of pumps that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of gear pumps, vane pumps, and piston pumps. | 2 | Intermediate |
| Hydraulics: Routine Maintenance | This course is designed to familiarize participants with tasks associated with the routine maintenance of hydraulic systems. After completing this course, participants should be able to describe general considerations associated with routine maintenance. They should also be able to describe procedures for performing external inspections and for maintaining some system components. | 2 | Intermediate |
| Hydraulics: Troubleshooting | This course is designed to familiarize participants with general steps for analyzing problems in hydraulic systems. After completing this course, participants should be able to explain how to identify problems in hydraulic systems and describe common problems associated with hydraulic system components. | 2 | Intermediate |
| Hydraulics: Valves, Part 1 | This course is designed to familiarize participants with the basic design and operation of various types of valves used in hydraulic systems. After completing this course, participants should be able to describe the functions of flow and pressure in a hydraulic system; and identify and describe various types of manually adjusted valves, sliding spool valves, and spring-biased valves. They should also be able to describe various ways in which valves can be actuated. | 2 | Intermediate |
| Hydraulics: Valves, Part 2 | This course is designed to familiarize participants with the functions performed by various types of valves used in hydraulic systems. After completing this course, participants should be able to describe how valves control flow rate, flow direction, and pressure in a hydraulic system. They should be able to describe the basic operation of a pressure-compensated flow control valve, a temperature-compensated flow control valve, various types of flow control circuits, a pressure reducing valve, a relief valve, a sequence valve, and a counterbalance valve. | 2 | Intermediate |
| Industrial Housekeeping | Poor housekeeping practices create hazards in our workplace. The concept of housekeeping includes picking up, wiping up, and cleaning up. This course will cover the benefits of a clean workplace and how to practice good housekeeping. | 0.25 | Intermediate |
| Industrial Math: Algebra | This course is designed to familiarize participants with the basic concepts of algebra. After completing this course, participants should be able to define terms commonly associated with the use of algebra, isolate an unknown in an equation, and use the processes of distribution and factoring. They should also be able to explain what ratios and proportions are and to explain the difference between a direct proportion and an inverse proportion. Finally, participants should be able to use a calculator to solve math problems. | 2 | Intermediate |
| Industrial Math: Basic Operations, Part 1 | This course is designed to introduce participants to the basic principles of addition, subtraction, multiplication, and division. After completing this course, participants should be able to describe how to add, subtract, and multiply numbers in vertical columns, and to explain how short division and long division is done. They should also be able to explain powers of numbers and roots of numbers, and they should be able to describe shortcuts for multiplying and dividing with multiples of ten. | 2 | Intermediate |
| Industrial Math: Basic Operations, Part 2 | This course is designed to familiarize participants with basic mathematical operations involving signed numbers, averaging, rates, fractions, decimals, and conversions. After completing this course, participants should be able to perform basic mathematical operations with signed numbers, perform combined operations in the proper order, find the average of a group of numbers, and calculate rates. They should also be able to add, subtract, multiply, and divide with fractions and decimals. Finally, participants should be able to convert between fractions, decimals, and percents; write numbers using scientific notation; and use conversion tables. | 2 | Intermediate |
| Industrial Math: Formulas, Graphs, and Trends | This course is designed to familiarize participants with the basic principles associated with using formulas, reading and interpreting graphs, and detecting and analyzing trends. After completing this course, participants should be able to explain what a formula is and use formulas to find areas, volumes, and volumetric flow rates. They should also be able to describe how graphs and charts can provide information about process variables. In addition, participants should be able to describe basic procedures for detecting and analyzing trends. | 2 | Intermediate |
| Industrial Pneumatic Technology: Aftercoolers, Driers, and Receivers | "Air compressors are used in industry to store compressed air or inert gases, which can then be used to power air motors, cylinders, and other pneumatic devices. Clean, dry air is essential for pneumatic systems to function properly, so it is important to remove moisture and contaminants to ensure optimum performance of the system. In this interactive online course, we will identify some components of air compressors, including aftercoolers, dryers, receivers, and air distribution systems." | 0.5 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Industrial Pneumatic Technology: Air Preparation | "Pneumatic components and systems require compressed air that is free of contamination. No matter how well a system is designed, if contaminated air gets into the components, it can interfere with proper circuit operation. In this interactive, online course, we will cover the types of contaminants that can be found in the air used in pneumatic systems and identify ways to clean it up." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Check Valves, Cylinders, and Motors | Selecting the right cylinders, check valves, and motors in pneumatic applications involves more than just picking them off the shelf. In this interactive online course, we will cover check valves and two types of pneumatic actuators: cylinders and motors. We will discuss the functions of each in a pneumatic system. We will also cover formulas used in sizing cylinders, cylinder volume, compression ratio, and more. | 1 | Intermediate |
| Industrial Pneumatic Technology: Compressors | In order to accomplish useful work with a pneumatic system, we need a device that can supply a sufficient amount of air at a desired pressure. The device that performs this function is called a compressor. In this interactive online course we will describe the principles of air compressor operation and give you details about the types of positive displacement and dynamic air compressors. We will instruct you in identifying compressor capacity and we'll give you parameters for selecting a compressor system. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Control of Pneumatic Energy | First off, energy that is transmitted through a pneumatic system must be directed and under complete control at all times. If it isn't, useful work may not be done, and machinery or machine operators could be harmed. In this interactive online course you will learn the basics of the pneumatic system, its operation, and its control. You will see diagrams of the components and get explanations for how the various parts work together. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Directional Control Valves | A directional control valve is an essential component that enables flow into different paths from different sources in hydraulic and pneumatic machinery. This fundamental part controls the stop, start and direction of flow. In this interactive, online course we will cover the different types of directional control valves and explain the methods used to classify these valves. We will discuss the use of poppet valves, and identify the different types of shear action valves. Lastly, we will discuss replacing valves and correct sizing for flow rate. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Energy Transmission | Do you know how compressors are used? Were you aware that gas is actually a fluid? In this interactive online course we will discuss the basics of gases and pressure. We will also discuss compressors and how pressure is measured. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Excess Flow Valves, Boosters, and Sequence Valves | How much do you know about Pneumatics? In this online, interactive course we'll be examining a few pneumatic components and showing how they can be used in some basic circuits. We'll begin with a definition and move through descriptions of the components and circuits. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Flow Control Valves, Silencers, and Quick Exhausts | "Flow control valves used in pneumatic circuits affect actuator speed. Understanding how flow control valves operate will allow you to increase or decrease flow rate to meet the needs of your pneumatic circuits.<br>This interactive online course will teach you about several types of adjustable flow control valves available. You will learn how flow control valves operate by reviewing different pneumatic circuit examples. Additionally, you will learn how an orifice is used to control flow rate. You will also learn about special purpose devices used in pneumatic circuits." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Force Transmission | "Pneumatic systems work because of a special property of fluids and the way these fluids transmit force and pressure. Understanding how fluids transmit energy will allow you to maintain your pneumatic control systems at desired operating conditions.<br><br>This interactive online course will teach you about the different sources of pneumatic energy along with how force is carried through gases and liquids. Additionally, you will learn ways compressed air is used in pneumatic systems. You will also learn about calculation methods for determining how much pressure is generated in gases." | 0.5 | Intermediate |
| Input and Output Devices | This course covers the basics of all different kinds of input and output devices for computers from keyboards to the mouse. It also discusses data sorting, user data inputs, image inputs, visual outputs, audio outputs, and networks. | 0.25 | Intermediate |
| Instrumentation and Control: Automatic Process Control, Part 1 | This course is designed to familiarize participants with the basic concepts associated with automatic control of process systems. After completing this course, participants should be able to describe the functions of the four basic elements of an automatic process control system and explain how a process disturbance can affect a process control system. They should also be able to explain how feedback control and feedforward control can be used in process control systems. In addition, participants should be able to explain how resistance, capacitance, dead time, and lag time can affect a process control system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Automatic Process Control, Part 2 | This course is designed to familiarize participants with control modes used with automatic process control systems. After completing this course, participants should be able to describe two-position control, proportional control, reset control, rate control, and proportional-integral-derivative (PID) control and explain how each of these control modes works in a control system. They should also be able to explain how proportional band applies to a control system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Introduction to Control and Data Systems | This course is designed to familiarize participants with the role of information systems in plant operations and the elements of modern information systems. After completing this course, participants should be able to identify the information needs of typical plant functional elements and explain how information gets into an information system. They should also be able to describe system architecture and explain how to use environment software and application software. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Introduction to Process Control | This course is designed to familiarize participants with the basic elements, terminology, and functions of control systems. After completing this course, participants should be able to identify and describe the various types of input and output devices that are commonly used with automated control systems. They should also be able to identify and describe common types of control devices and control loop arrangements. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Instrumentation and Control: Measurement of Concentration | This course is designed to introduce participants to some basic information about analytical variables and to some methods for measuring concentration in liquids and gases. After completing this course, participants should be able to define five analytical variables that are commonly measured in plants and explain how and why analytical variables are measured. They should also be able to describe the basic operation of several different types of analyzers that can be used to measure liquid and gas concentrations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Density, Clarity, and Moisture | This course is designed to introduce participants to some devices that can be used to measure density, clarity, and moisture. After completing this course, participants should be able to define various terms associated with density, clarity, and moisture and describe the basic operation of devices used to measure density, clarity, humidity, and moisture. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Level and Flow | This course is designed to introduce participants to instruments that measure level and flow. After completing this course, participants should be able to explain what level is and describe the basic operation of various direct level measurement devices and indirect level measurement devices. They should also be able to explain what fluid flow, flow rate, and total flow are and describe some common examples of direct flow measurement and indirect flow measurement. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Pressure and Temperature | This course is designed to introduce participants to some of the fundamental aspects of process variable measurement and to some of the basic instruments used for pressure measurement and temperature measurement. After completing this course, participants should be able to describe the function of process instrumentation and describe how to obtain accurate readings from instruments such as gauges, indicators, and recorders. They should be able to explain what pressure and temperature are and how they are expressed, and they should be able to describe the operation of several pressure measuring devices and several temperature measuring devices. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: The Human-Machine Interface | This course is designed to familiarize participants with the different types of human-machine interfaces (HMIs) that are likely to be found in a modern plant. After completing this course, participants should be able to obtain process information using typical instruments, operate typical switch controls, use smart I/O devices and controller interfaces, and perform common computer operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Insulators | Insulators, or nonconductors, are materials with electrons that are tightly bound to their atoms and require large amounts of energy to free them from the influence of the nucleus. Examples of insulators are rubber, plastics, glass, and dry wood. This course introduces participants to electrical insulators and their physical properties. In addition, it describes the various uses of insulators as well as some of the materials that are used as insulators. | 1 | Intermediate |
| ISO 9000 | The European Community (EC) is a single trading bloc including many countries in Europe. The International Organization for Standardization (ISO) is an organization working with the EC and other countries to develop worldwide standards for products and services. The series of quality system standards and guidelines is commonly called ISO 9000. The focus of this course will provide examples showing how process plant operations can be modified to comply with ISO 9000. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Kirchhoff's Laws | Kirchhoff's two laws reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. This course introduces Kirchhoff's voltage and current laws and explains how to use these laws to calculate the voltage and current of circuits. | 1 | Intermediate |
| Lean Manufacturing: Continuous Improvement and the PDCA Cycle | Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes. | 0.5 | Intermediate |
| Lean Manufacturing: Determining the Voice of the Customer | The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a businesses success and describes how to anticipate and meet customer needs and requirements once this data is captured. | 0.5 | Intermediate |
| Lean Manufacturing: Kaizen | Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet todays challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day. | 0.5 | Intermediate |
| Lean Manufacturing: Kanban | Did you know the word "Kanban" is of Japanese origin and translates to "billboard" or "signboard"? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it. | 0.25 | Intermediate |
| Lean Manufacturing: Poka-Yoke | This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction. | 0.25 | Intermediate |
| Lean Manufacturing: Pull Systems | This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While well introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes. | 0.5 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lean Manufacturing: Standardized Work | This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting. | 0.5 | Intermediate |
| Lean Manufacturing: Value and Waste | Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value. | 0.5 | Intermediate |
| Lean Manufacturing: Value Stream Mapping | Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool. | 0.5 | Intermediate |
| Lean Manufacturing: Visual Management | Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information. | 0.25 | Intermediate |
| Lighting Basics | All workplaces depend on high quality lighting. In addition to providing illumination of workspaces, good lighting also plays a role in enhancing employee satisfaction and performance, as well as providing general comfort and safety. It reduces the risk of eye strain and any of the physical symptoms that accompany it, including headaches or neck pain. In the industrial setting, lighting does all this, plus it provides clear visual indication of functions, and control of various processes. This module will describe different types of lights and their common uses. | 0.25 | Intermediate |
| Liquid Level Measurement, Part 1 | Many industrial liquids are important to plant operations. Accurate level measurements are an essential part of process control for efficient plant operation. Devices for making liquid level measurements are common throughout industry. You need a basic understanding of liquid level instruments design, how the instruments operate, and how they're maintained. In this course, you will explore a number of different devices used to measure and control liquid levels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Liquid Level Measurement, Part 2 | This course will familiarize you with various devices and systems that use pressure to measure liquid level. Indirect level measurement instruments measure quantities, such as liquid pressure, that vary due to liquid level changes. Indirect level measurement instruments are a practical way to measure liquid levels, and the converted signals are used for indication and control functions throughout the plant. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Logic Technology, Logic Functions, Sequential Logic, and Analog Conversion | The field of electronics deals with information in the form of electrical signals. Most of the electrical signal information that people encounter is in analog form. An analog signal is one that is continuously variable between the minimum and maximum values. This course begin with a discussion on digital and analog signals, covers truth tables and common logic functions, and then concludes with logic circuits and analog conversions. | 0.5 | Intermediate |
| Lubricants and Oils | When two moving solid surfaces interact, material from those surfaces can be lost. This loss of material is known as "wear." Wear on equipment can shorten the lifespan of machines, disrupt production, and result in product loss. Lubrication is the process of using substances called lubricants to reduce wear. This course covers what lubricants are, what they are made of, and common types of lubricants. This course also illustrates the differences between common lubricating methods as well as safe storage and handling requirements. | 0.5 | Intermediate |
| Lubrication Basics | Whenever two moving, solid surfaces contact each other, there is friction which creates heat and leads to destructive wear. Lubrication is the process of introducing a lubricant substance between the surfaces in order to reduce that friction and wear. A lubricant can be a solid such as molybdenum disulfide or Teflon; a semi-solid, such as grease; a liquid, such as oil; or even a gas such as air. This module will focus primarily on the industrial uses of liquid oils and grease as lubricants. | 0.5 | Intermediate |
| Magnetism and Electromagnetism Basics | A magnet is a material that attracts other metals. About 4,000 years ago, it was found that a stone called magnetite attracted pieces of iron. It was later found that a long piece of magnetite would align itself with the north and south poles of the earth. Experimentation showed that one end would always align with the North Pole and the other end with the South Pole. This module will discuss the principles of magnets, magnetic fields, and types of magnets. | 0.25 | Intermediate |
| Maintenance of Air and Oil Circuit Breakers | Circuit breakers are devices that open or close a set of electrical contacts to interrupt or complete an electrical circuit. A switchgear is a self-contained, enclosed assembly of circuit breakers and related components. Both circuit breakers and switchgear serve to protect plant circuits from various electrical problems. They can switch power on and off, and they can isolate circuits on which work is being performed. Electrical maintenance personnel are responsible for keeping circuit breakers and switchgear working properly and for performing periodic inspections and any necessary repairs. This course covers the operation and maintenance of high-voltage circuit breakers and switchgear (4 KV and above) that are typically used for in-plant distribution of electrical power. Many high-voltage circuit breakers used for transmission purposes consist of three single-phase breakers connected to a common operating mechanism. However, the distribution breakers discussed in this course are three-phase breakers. | 1 | Intermediate |
| Maintenance of High-Voltage Circuit Breakers | After completing this course, you should be able to describe the basic operation of an oil circuit breaker, an air-magnetic circuit breaker, a vacuum circuit breaker, and an SF6 gas puffer circuit breaker. You should also be able to explain how each type of circuit breaker extinguishes an arc, and you should be able to describe basic procedures for racking out high-voltage circuit breakers and performing routine maintenance and testing on them. | 1 | Intermediate |
| Maintenance of Low-Voltage Circuit Breakers | Circuit breakers and switchgear are among the most common, yet critical, components of an industrial electrical system. Circuit breakers are devices that interrupt or complete electrical circuits. They protect systems and equipment from the effects of excessive current, and they provide a way to switch power on and off and isolate circuits or equipment on which work is being performed. Switchgear is basically a self-contained, enclosed assembly of circuit breakers and auxiliary devices. Part of your responsibility involves keeping circuit breakers and switchgear working properly. So, it is important for you to have a good understanding of how circuit breakers work and the types of maintenance procedures that are typically performed on them. | 1 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Math: Basics | This course is designed to familiarize participants with basic mathematical applications that can be used on the job. After completing this course, participants should be able to interpret measurements that include fractions and decimal values, measurements in English and metric units, and perform mathematical applications involving fractions and decimals. They should also be able to calculate dimensions associated with rectangles, triangles, and circles. | 2 | Intermediate |
| Mathematics - Exponents | Exponents are used as shorthand for repeated multiplication of the same number and in scientific or engineering notation to simplify very large or small numbers. There are some simple rules that can help when working with exponents. This course will review squaring, cubing, exponent rules, scientific notation, and engineering notation. | 0.25 | Intermediate |
| Mathematics - Percentages and Fractions | This course discusses the definition of percent and fraction, how to change between numbers and percentages, how to properly write a fraction, as well as how to multiply, divide, add, and subtract fractions. | 0.25 | Intermediate |
| Matter States and Temperature | All matter on earth exists in one of three phases or states: solid, liquid, or gas. A substance's phase is determined by the speed of its molecular motion, often referred to as kinetic energy. Adding or removing heat energy from a substance can change it from one state to another. This course illustrates the types and properties of matter states, and concludes with a discussion of temperature scales and the different types of heat transfer. | 0.25 | Intermediate |
| Measurement - Dimensions | Distance measuring units include the U.S. standard, (inch, feet, yard), decimal-inch (tenth, hundredth, thousandth, ten-thousandth), or the metric (millimeter, centimeter, meter). Being able to measure distance or determining if something is square are integral parts of many projects. This can include weekend do-it-yourself jobs to major landscaping and construction projects. While measuring cannot be done without some variation, errors can be reduced by following basic principles covered in this course. | 0.25 | Intermediate |
| Measurement - Temperature, Force, and Fluid Properties | Monitoring and measurement are an essential part of almost every job. Proper measurement of physical properties requires the knowledge of specific terms, measuring units, and measuring devices. This course covers the terminology needed to accurately monitor and measure equipment, as well as the measuring units and techniques that apply to temperature, force, and fluids. It also discusses the challenges associated with measuring different physical properties. | 0.5 | Intermediate |
| Mechanical Maintenance: Basic Terms of Maintenance | "This interactive online course teaches you about the basic terms commonly used in industry. You will learn definitions for concepts, including measurements of energy, temperature, and loading limits. You will also learn about common industrial processes, and examine some of the components used in these processes.<br>This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance, Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers, Mechanical Maintenance: Maintaining V-Belts, Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain, Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts, Mechanical Maintenance: Couplings, Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches" | 0.5 | Intermediate |
| Mechanical Maintenance: Couplings | This interactive online course addresses how different couplings attach to shafts. You will learn factors that can increase wear and the lifespan of a coupling, and the applications of different coupling types. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | This interactive online course addresses how breaks and clutches work, conditions that can cause breaks and clutches to fail, and brake and clutch maintenance to better prevent premature wear. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers | When the normal operating speed of a motor is different from that required for an application, speed reducers, frequently called gear boxes or gear reducers, are often used to lower the speed. This interactive online course will teach you about the basic parts that all reducers have in common. You will learn common problems that go wrong with reducers and how to spot them early, before they become serious. You will also learn how to maximize the efficiency of reducers you work with and how to get them running again when things go wrong. You will also be taught what to look for during an overhaul. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts | Transmission drives rely on belts to transfer power. No belt lasts forever, but by following the guidelines discussed in this course, unexpected equipment downtime can be minimized. This interactive online course will teach you about three types of belt driven power transmission drives, flat belts, V-belts and timing belts. You will learn how each belt works, how they're constructed, and taught the importance of proper installation and maintenance. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain | "This interactive online course teaches you about two kinds of power transmission drives, those using roller chain and those using silent chain. You will learn about how they are constructed and how they work. You will also learn about some of the most common reasons why they fail. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance, Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers, Mechanical Maintenance: Maintaining V-Belts, Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain, Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts, Mechanical Maintenance: Couplings, Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches " | 0.5 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mechanical Maintenance: Maintaining V-Belts | "Do you know the best ways to troubleshoot and maintain V-belts? This interactive online course teaches you about the basics of maintaining V-belts. You will learn how to describe V-belt types, explain proper V-belt installation, identify problems with V-belts, and discuss V-belt replacement. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance, Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers, Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain, Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts, Mechanical Maintenance: Couplings, Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches" | 0.5 | Intermediate |
| Mechanical Seals | The purpose of this course is to provide participants with a general understanding of mechanical seals and mechanical seal installation. At the completion of this course, participants will be able to describe the components and operation of the different types of mechanical seals as well as procedures for seal removal and installation. | 1 | Intermediate |
| Meeting Customer Expectations | Meeting the needs and expectations of the customer is important in any successful product design. Waste, products with inconsistent-quality, and even a poor company reputation can lead to not meeting customer expectations. This course focuses on ways to discover the needs and expectations of the customer, the different categories of product features, and the importance of following established production procedures. | 0.25 | Intermediate |
| Metal Fabrication | This course begins by illustrating how to bend, shear, and saw metal using various machines. It then illustrates how to cut metal using a gas torch. The course concludes with a discussion of abrasives and the best practices while using abrasives. | 0.25 | Intermediate |
| Metals - Identifying Steel and Iron | This course covers how to identify steel and iron using specific tests including surface appearance, spark test, oxyacetylene torch test, magnetic test, and chip test. This course then discusses the advantages of iron, what steel is, and the different types of steels that are commonly used. | 0.25 | Intermediate |
| Metals - Physical Properties and Types | This module will cover metal types, alloys, impurities, hardness, toughness, tensile strength, ductility, malleability, and elasticity. It will also discuss the difference between ferrous and non-ferrous metals. | 0.25 | Intermediate |
| Motor Branch Circuit Protection | A motor branch circuit, or motor branch, is a circuit that provides power and protection for a motor. According to the National Electrical Code® (NEC®), a motor branch must have a means to disconnect the entire branch from its power supply and a means to protect the branch components from the potentially damaging effects of excessive current. How a motor branch functions and how the necessary protection is provided are the subjects of this course. | 1 | Intermediate |
| Motor Control Circuits and Functions | A small motor can be started by simply plugging it into an electrical receptacle or by using a switch or circuit breaker. A large motor requires a specialized switching unit called a motor starter or motor contactor. Once they are running, there are many other aspects to safe and efficient motor operation. Motor control refers to manual or automatic methods for starting, stopping, controlling speed, reversing, and protecting a motor. These controls are achieved using a variety of circuits, connections and sensors. | 0.5 | Intermediate |
| Motor Overload Protection | "Large alternating current motors are vital to modern life and industry. While motors are relatively simple devices, they can be installed or operated incorrectly or develop operational problems. For protection of the motor and for safety reasons, electrical motors require protective devices on their power supply systems.<br><br>Circuit breakers and fuses are used to provide protection from very high-current short circuits and ground faults. Overload devices are used to protect from longer period, moderate overcurrent events. This module will focus primarily on the role and function of the overload protection devices." | 0.25 | Intermediate |
| Motor Starters | When a relay is used to switch a large amount of electrical power through its contacts, it is designated by a special name: contactor or starter. This course covers contactors, incoming and auxiliary contacts, overload heaters, starter construction, starter operation, using heater elements in troubleshooting, and typical starter configurations. | 0.25 | Intermediate |
| Multistage Centrifugal Pump Maintenance | Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A singlestage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered. | 1 | Intermediate |
| Multistage Centrifugal Pumps | A centrifugal pump converts external rotational mechanical energy into kinetic energy within a liquid. In the most common design of the centrifugal pump, a single impeller spins within a case called a volute. There is an economical limit to the pressure increase that can be achieved with a single impeller. Placing multiple impeller-and-volute stages in a case creates a single centrifugal pump unit capable of continuously delivering much higher discharge pressures than can be created by a single stage pump. This type of pump is called a multistage centrifugal pump. This course discusses some of the mechanical considerations and different designs of multistage centrifugal pumps. | 0.25 | Intermediate |
| Networks Introduction | In all control systems, inputs pass information to the decision-making controller, which then passes information to output devices. The manner in which this "information-passing" process works varies with the type and complexity of the control system. This course will provide an overview of some different types of control systems, as well as some basic concepts that apply to control system networks. | 1 | Intermediate |
| Networks: Fiber Optic Systems | This course is designed to familiarize participants with the basic operating principles of fiber optic systems and some of the basic installation and testing methods. After completing this course, participants should be able to describe characteristics of glass fibers and describe the function and types of fiber optic connectors. They should also be able to describe basic procedures for installing and testing fiber optics. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Networks: Setting Up and Troubleshooting | This course is designed to familiarize participants with basic concepts that apply to setting up and troubleshooting control networks. After completing this course, participants should be able to describe different types of cables and connectors that are used to link together devices in control networks. They should also be able to describe basic procedures for installing, testing, and troubleshooting control networks. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Non-conductive Tools | Electricity can be dangerous to human beings. The use of non-conductive tools is one of many techniques used to reduce the chance of injury when working with electricity. Electrical conductivity is an intrinsic property of a material which quantifies the ability of a material to allow or oppose the flow of electrons produced by a voltage difference across the material. Non-conductive tools help protect an electrical worker by preventing the flow of electricity from a live source to the person holding the tool. | 0.25 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Ohm's Law | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that is commonly referred to as Ohm's Law. Ohm's Law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. This course describes Ohm's law; the units in which power is measured; and how to solve for power, voltage, current, and resistance using Ohm's Law. | 1 | Intermediate |
| Operations: Basic Principles | In this course, you will learn how a plant responds to load demand changes and what the basic responsibilities of an operator are during a load change. You will describe the basic function of bearings, identify sliding surface bearings and roller contact bearings, and know some of the operator responsibilities for checking bearings and maintaining lubrication. | 1 | Intermediate |
| Operator Basic Care | Operator basic care (also known as operator essential care, operator driven reliability, asset basic care, or autonomous maintenance) is an equipment reliability program. Although the name and program details can vary, the general concept is to involve operators in the maintenance of their equipment. By engaging all employees, a consistent product output and quality can be maintained throughout the expected lifespan of a machine. The theory is that maintenance should be driven by operators because they spend the most time with the equipment, so they know the most about the current machine condition. Operator basic care provides a foundation for a successful predictive maintenance program. This course covers the basic concepts and best practices of Operator Basic Care programs. | 0.5 | Intermediate |
| Operator Responsibilities: Advanced Operator Responsibilities | This training unit is designed as a refresher for experienced operators and a look at the operator's changing role. The specific areas covered include operator responsibilities for safety, data collection, production, and interpersonal communications. | 1 | Intermediate |
| Operator Responsibilities: Basic Operator Responsibilities | Modern industrial facilities include complex groups of systems serving a multitude of functions. These systems, which consist of equipment, piping runs, and electrical cables, all work together to process raw materials into final products that can be supplied to customers. Many groups of people are involved in the operation of an industrial facility. This course focuses on the basic responsibilities of the people who operate process systems. | 1 | Intermediate |
| Operator Responsibilities: Communication | This course is designed to familiarize participants with basic operator responsibilities associated with interpersonal relationships and data collection and use. After completing this course, participants should be able to describe the components of a basic communication model and describe an operator's responsibilities for communicating with other plant personnel, customers, and members of the surrounding community. They should also be able to describe operator responsibilities associated with collecting and using written data and with participating in effective shift changes. | 2 | Intermediate |
| Operator Responsibilities: Introduction | How much do you know about how plants are operated? In this online interactive course we will cover how in a plant, many different systems work together to turn raw materials into finished products. Many different people work together to make sure the systems work the way they should. Some of these people are the plant operators who are responsible for running the process systems. | 0.5 | Intermediate |
| Operator Responsibilities: Plant Production and Safety | The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with. | 0.5 | Intermediate |
| Operator Responsibilities: Trends, Maintenance, and Emergencies | This course is designed to familiarize participants with basic operator responsibilities associated with trend analysis, equipment maintenance, and emergency situations. After completing this course, participants should be able to describe ways to detect and analyze trends, explain how work orders are used, and describe how to perform some minor maintenance tasks. They should also be able to explain how operators can prepare for emergency situations and describe operator responsibilities during emergencies. | 2 | Intermediate |
| Overall Equipment Effectiveness | "Overall Equipment Effectiveness (OEE) is a manufacturing performance metric that is used to identify the sources of lost production and measure improvement efforts.<br>In this course we will discuss the purpose of OEE and how it is calculated. We will define availability, performance, and quality factors. We will also describe how to implement and analyze OEE and define the Six Big Losses, as well as how to reduce them." | 0.75 | Intermediate |
| Oxyacetylene Welding Equipment and Safety | "Oxyacetylene welding, also known as gas welding, is a process which relies on the combustion of oxygen and acetylene to produce a very hot flame. When these gases are mixed together in the correct proportions, a flame is produced with a temperature that is sufficient to melt steel.<br>This course will cover the basics of oxyacetylene welding and some best practices that should be followed in order to be safe on the job. We will go over how oxygen and acetylene are used in gas welding, the equipment that makes up a gas welding rig, and the PPE required to maintain a safe welding environment." | 0.5 | Intermediate |
| Painting and Coating Basics | "Surfaces are often painted or coated to protect them against corrosion and degradation. Metal corrosion is of particular concern because it can cause equipment failures, which can lead to safety problems, environmental issues, lost production, and increased costs. Wood surfaces are also often painted or coated to provide protection from insects, fungi, and weathering. Paints and coatings for use on masonry surfaces must be formulated for the high pH levels that are often present. Prior to painting or coating, surfaces must be properly prepared, which may include cleaning, sanding, drying, and sometimes priming, in order to achieve even coverage and good adhesion. " | 0.25 | Intermediate |
| Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in parallel are connected so the same voltage is applied to each component. In this course, participants will learn about the fundamentals of parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Photoswitches, Proximity Sensors, and Feedback Devices | Photoswitches, proximity sensors, and feedback devices are all used to detect objects or information. They are useful in industrial and manufacturing environments to sense product or personnel in the line of machinery or equipment. This module discusses the operation of the different types of each of these. | 0.25 | Intermediate |
| Physics Basics | Understanding physics is a huge endeavor as it covers so many different scientific elements, from the gravity that keeps people from floating into space to the momentum that keeps an object in motion. Simply defined, physics is a branch of science that studies matter and its motion, as well as how it interacts with energy and forces. It covers such subjects as motion, electricity, work and energy, astronomy, waves and sound, light and optics, and nuclear physics and relativity. This module will focus on how physics relates to motion, work, and energy. | 0.5 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pipes and Valves: Basic Pipefitting Skills | Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square. | 2 | Intermediate |
| Pipes and Valves: Calculating Offsets | Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets. | 2 | Intermediate |
| Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe | Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method. | 2 | Intermediate |
| Pipes and Valves: Installing Pipe Hangers and Supports | Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors. | 2 | Intermediate |
| Pipes and Valves: Installing Screw and Welded Pipe | Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping. | 2 | Intermediate |
| Pipes and Valves: Pipes and Pipe Fittings | This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe. | 2 | Intermediate |
| Pipes and Valves: Special Calculations | Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures. | 2 | Intermediate |
| Pipes and Valves: Valve Maintenance | This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it. | 2 | Intermediate |
| Pipes and Valves: Valve Types and Operation | This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated. | 2 | Intermediate |
| Piping and Auxiliaries: Basic Components and Functions | This course is designed to familiarize participants with some of the basic components commonly found in piping systems. After completing this course, participants should be able to state the purpose of piping and pipe fittings and describe some common types of pipe fittings. They should also be able to describe devices that are used to accommodate the weight and movement of piping, and they should be able to explain how insulation and heat tracing help to control temperatures in piping systems. | 2 | Intermediate |
| Piping and Auxiliaries: System Components and Operation | This course is designed to familiarize participants with some of the auxiliary components commonly found in piping systems. After completing this course, participants should be able to describe the function and operation of rupture discs, relief valves, safety valves, and some common types of steam traps. They should also be able to describe basic procedures for draining and filling liquid systems, and they should be able to describe some typical operator checks for fluid systems. | 2 | Intermediate |
| Plant Science: Fluid Systems | This course is designed to introduce participants to the characteristics, components, and operation of fluid systems. After completing this course, participants should be able to explain, in general terms, what a plant system is and what a fluid is. They should also be able to explain the basic layout of a liquid system and describe energy conversions in a liquid system. Participants should also be able to describe the basic parts of a compressed air system and the basic operation of several gas and vapor system devices. | 2 | Intermediate |
| Plant Science: Forces and Machines | This course is designed to introduce participants to scientific principles associated with applied forces and the operation of basic machines. After completing this course, participants should be able to define work, power, and efficiency; and explain the mechanical advantage of this inclined plane and the lever. They should also be able to explain the hydraulic principle and the relationship between friction and the operation of machines. | 2 | Intermediate |
| Plant Science: Gases and Flowing Liquids | This course is designed to familiarize participants with basic concepts associated with the properties of gases and flowing liquids. After completing this course, participants should be able to describe the major properties of gases and explain how these properties are related. They should also be able to explain how pressure can be measured and to describe the effects of flow, velocity, and friction on the head pressure of a liquid. | 2 | Intermediate |
| Plant Science: Heat | This interactive training is designed to introduce you to some of the basic principles associated with heat and heat transfer. In this course, we will describe some of the effects of heat, the relationship between temperature and thermal energy, and the Law of Energy Conservation. We will define the terms “sensible heat” and “latent heat.” Also, we will discuss the effects of pressure on the temperature at which a substance undergoes a phase change. | 0.5 | Intermediate |
| Plant Science: Heat Transfer | This interactive online course is designed to introduce you to the fundamentals of heat transfer and the basic operation of a typical heat exchanger. We will describe the effects of a temperature difference on heat transfer and the three modes of heat transfer. We will also explain the basic operation of a shell and tube heat exchanger and identify problems that can occur in a heat exchanger | 0.5 | Intermediate |
| Plant Science: Process Dynamics and Measurement | This course is designed to familiarize participants with the characteristics of dynamic process operation and with devices that are commonly used to measure process variables. After completing this course, participants should be able to explain what resistance and capacitance are in process systems and to describe factors that affect the response of a process system to operating changes and process disturbances. Participants should also be able to describe devices that can be used to measure pressure, flow, level, and temperature. | 0.5 | Intermediate |
| Plant Science: Solids and Liquids | This course is designed to familiarize participants with basic scientific principles that relate to solids and liquids. After completing this course, participants should be able to describe the general molecular structure of solids, liquids, and gases. They should also be able to describe specific properties associated with solids and liquids. | 2 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Plastic and Rubber Basics | Plastics and rubbers are used in many industrial and non-industrial applications. This course discusses the definition of plastics and rubbers as well as their types, properties, and applications. This course also illustrates cutting, drilling, shaping, and fastening plastics. | 0.25 | Intermediate |
| PLC Basics | A Programmable Logic Controller (PLC) is a computer that is designed to be used in industrial applications. The PLC has a specialized operating system that carries out a set of user instructions over and over again. This course will discuss what a PLC is as well as common PLC components and applications. | 0.4 | Intermediate |
| PLC Ladder Logic | "Programmable logic controllers, or PLCs, are specialized, robust industrial computers. They are designed to continuously control equipment and processes based on process inputs and logical control programming. One of the most common ways to program this type of computer is a technique called ladder logic. This is a technique that provides a visual representation of the logic flow which helps with both initial programming and subsequent troubleshooting.<br>This course discusses the background of ladder logic as well as basic instruction types such as examine if closed and examine if opened. This course also illustrates several varying ladder logic examples such as a lamp, motor starter, and garage door." | 0.4 | Intermediate |
| PLCs: Troubleshooting Software, Part 1 | Most PLC system problems are hardware related, and most of these are in the I/O systems. However, software and network problems do occur, and they are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This module will examine how to use the PLC programming software to troubleshoot software and network problems. It will also explore techniques and the hardware and software tools that are available for isolating software problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| PLCs: Troubleshooting Software, Part 2 | Most PLC system problems are hardware related, and most of these are in the I/O systems. However, software and network problems do occur, and they are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This module will examine how to use the PLC programming software to troubleshoot software and network problems. It will also explore techniques and the hardware and software tools that are available for isolating software problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pneumatic Basics | "Pneumatics is defined as ""using pressurized gases to do work."" Pneumatic systems are based on the controlled use of compressed air as a source of stored potential energy. By controlling how the air is released, the energy can be turned into movement. Pneumatics are used in handheld power tools, automatic doors, and conveyor systems. They are also used in aircraft for landing gear, flaps, and other instruments. The air brakes on buses and trucks are pneumatic, as well as some exercise machines. Typically, pneumatic systems are more flexible, less costly, and more reliable than many other types of electric motors." | 0.5 | Intermediate |
| Pneumatics: Actuators and Positioners | Typically, pneumatic actuators and positioners are rugged and dependable. But like any other piece of equipment, their parts can wear out from the rigors of around-the-clock use and may need to be replaced or adjusted from time-to-time. In this interactive online course, we're going to look at several different actuators and positioners to see what their component parts are, how they work, and how to adjust them. | 1 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems | "In your plant, there are process conditions that can vary or change, such as temperature, pressure, flow and level. Frequently, these process variables must be maintained at or near a desired value. Understanding how these systems operate will allow you to manage your system at desired operating conditions.<br>This interactive online course will teach you about the elements normally found in a basic pneumatic control system. You will learn about control systems used to maintain temperature, pressure, flow and level. Additionally, you will learn about resources that provide information about pneumatic control systems." | 1 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems and Diagrams | "Pneumatic instruments play an important role in the overall operation of a plant. Knowing how to troubleshoot and fix problems with pneumatic instrument systems will allow you to get your plant quickly back into operation. This interactive online course will use an example of a level control system to teach you about pneumatic instrumentation, basic pneumatic instrument groups and their functions. You will also learn about commonly used plant system diagram symbols and how they are used in diagnosing and correcting problems in the instrument systems found in your plant." | 1 | Intermediate |
| Pneumatics: Controllers | "In industrial process plants, it's critical for pneumatic controllers to work properly and to be adjusted correctly. Understanding how controllers operate will help you when you're repairing a controller or tuning a pneumatic control system. This interactive online course will teach you about several types of pneumatic controllers. You will learn how these controllers operate and how to make basic adjustments to the controllers. You will also learn the mechanisms in a controller and how their four basic functions operate." | 1 | Intermediate |
| Pneumatics: Indicators and Hand-Auto Control Stations | "Transmitters, recorders, signal converters, indicators, and hand-auto control stations are all important pieces of instrumentation and control equipment used in pneumatic systems. Understanding how these instruments function will allow you to maintain your system at desired operating conditions. This interactive online course will teach you about the relationship between the input and output of a transmitter and how a pneumatic transmitter develops an output pressure signal that accurately represents the value of a process variable. You will also learn how to perform calibration adjustments on a typical pneumatic transmitter. Additionally, you will learn the function and purpose of hand-auto control stations." | 1 | Intermediate |
| Pneumatics: Multi-Element Pneumatic Control Systems | "Multi-element pneumatic control system,s like all process control systems, operate primarily to maintain a process variable (such as level, temperature, flow, or pressure) at or near a predetermined value known as set point. This interactive online course focuses on several types of multi-element pneumatic control systems that are commonly used in industrial plants. The basic design and function of the control system are explained, and emphasis is also placed on how the instruments and components in the system work together to keep a process variable at or close to set point." | 1 | Intermediate |
| Pneumatics: Pneumatic Instrument Tubing | In any industry that uses pneumatic instrument systems to monitor and control plant processes or conditions, you'll discover miles of associated pipes and tubing routed throughout the plant. Without these intricate networks of piping and tubing, a plant couldn't operate. The important job of installing pipe and tubing for pneumatic control systems often belongs to you, the instrument technician. You'll be concerned specifically with installing pipe for instrument air supplies and tubing from one component to another in pneumatic systems that control process variables. Our goal in this interactive online course is to examine the basic skills and information you need to know to install piping and tubing for a pneumatic control system. To meet this goal, we'll observe a qualified technician as he puts a piping and tubing installation together. We'll take a close look at the materials and tools he uses and the technique he applies. However, before we start to do any actual work with pipe or tubing, we need to establish what pipe and tubing are, and we need to take a look at the major characteristics of each; their function, the important size factors for both, and the type of material they're made of. By doing this, we'll have a better understanding of how pipe and tubing are similar in some respects but different in others. | 1 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pneumatics: Self Balancing Instruments | At first glance, most pneumatic control equipment seems like a maze of bellows, cams, beams, and other mechanisms packed into a small area. Sometimes the design makes it appear as if the instrument is hard to understand. However, many of these instruments are fairly easy to understand if you know what you're looking for. In this interactive online course, we'll look at a few types of force balance and motion balance instruments in greater detail. We'll see how they operate and where common adjustments are located. | 1 | Intermediate |
| Pneumatics: Transmitters | "Most pneumatic instruments have in common basic components and structures. And even though they may look different, their operation is often quite similar.<br>In this interactive online course, we will cover the information needed to recognize the common components and structures of most pneumatic instruments and to understand how the common structures are related. We will cover types of pneumatic instruments, components, and mechanisms, self-balancing instruments, input mechanisms, error detector mechanisms, and output/balancing mechanisms." | 1 | Intermediate |
| Pneumatics: Troubleshooting Pneumatic Instrument Systems | "As an instrument technician you're going to find yourself doing a lot of troubleshooting. By using a logical procedure, you can face each problem confidently and solve the problem logically and efficiently.<br>This interactive online course will teach you the principles of troubleshooting and how to apply them to troubleshooting pneumatic instrument systems. You will learn how to observe, diagnose, and restore pneumatic instrument systems following troubleshooting principles. Additionally, this course will walk you through a troubleshooting example to demonstrate how to diagnose and resolve a pneumatic instrument system issue." | 1 | Intermediate |
| Pneumatics: Tuning Pneumatic Control Systems | When you tune a control system, you check and adjustment the instruments in the system to ensure that it operates within specified limits. The procedure's a lot like tuning an automobile engine. No two engines are the same, but if you know the engine and you use a logical tuning method, you can probably do the job. Now, in a plant, no two process control systems are exactly the same, but with the right knowledge and resources, you can tune a variety of control systems. In this interactive online course, we'll look at some of the basic principles of tuning a pneumatic control system. Then, we'll look at the process characteristics that are important in tuning, and we'll examine some common tuning methods. Afterwards, we'll see how an instrument technician tunes a control system. Most of the information that you'll learn from this course can be applied to the pneumatic control systems in your plant. | 1 | Intermediate |
| Portable and Emergency Equipment | This training program focuses on common types of portable and emergency equipment that are found in industrial facilities. Some types of portable equipment are used to periodically analyze conditions in a process or inside process equipment. Other types of portable equipment, such as pumps, have specialized roles that are determined by plant procedures and policies. Emergency equipment, such as respirators and fire fighting equipment, is used strictly during emergencies. | 1 | Intermediate |
| Positive Displacement Pump Maintenance Basics | The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures. | 1 | Intermediate |
| Positive Displacement Pumps | A positive displacement pump works by capturing a given volume of liquid at the suction of the pump, and then mechanically forcing it out of the discharge at a higher pressure. In contrast to centrifugal pumps, in which the flow is affected by downstream pressure, positive displacement pumps (within the limitations of the driver) deliver a nearly constant flow, independent of the downstream pressure. Positive displacement pumps can be categorized as reciprocating or rotary action pumps. This course describes the general characteristics of positive displacement pumps and the principles of operation of various common designs. | 0.5 | Intermediate |
| Precision Measuring Tools | This course covers micrometers and telescoping gauges. It also demonstrates how to read and use micrometers, dial indicators, digital calipers, thermometers, tachometers, and strobe RPM monitors. | 0.25 | Intermediate |
| Pressure and Pressure Measurement | Many of the instruments used to monitor systems or processes in a plant measure pressure. In order to understand how these instruments operate, instrument technicians must understand the concept of pressure; the ways in which solids, liquids, and gases exert pressure; and the standards established for pressure measurement. These topics will be covered in this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pressure Gauges and Calibration, Part 1 | The successful operation of a plant is closely linked to the reliability of the indicating instruments used by operating personnel. This course introduces participants to one of the primary responsibilities of instrument technicians, which is to ensure that each of the instruments used to monitor plant processes provides accurate indications. The standard method of ensuring that instruments such as pressure gauges are accurate is to check their calibration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pressure Gauges and Calibration, Part 2 | To properly calibrate rotary-geared pressure gauges, instrument technicians must have an understanding of pressure elements and adjustable pointer mechanisms; calibration standards, comparison graphs, and basic calibration procedures; and the differences in calibration procedures that are dictated by specific types of gauges. In addition to being able to perform calibrations on various types of pressure gauges, instrument technicians must also know how to compensate gauges for static pressures and to select devices that protect pressure gauges and thereby increase their service time. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Problem Solving Strategies | Problems arise in the workplace on a daily basis. Often times, they can be very difficult and time consuming to solve. Approaching the problem with a structured plan can help improve your efficiency, determine hidden causes, and increase the likelihood that your solution will actually fix the problem. This course illustrates key concepts using a step-by-step plan for a real world example, along with practical tools and strategies like the 5 Whys technique, that you can use when troubleshooting problems in your workplace. | 0.25 | Intermediate |
| Process and Instrumentation Diagrams | Process and Instrumentation Diagrams, also known as P&IDs, are basically maps meant to show process connections and equipment relationships pictorially. They are invaluable during the planning and installation of new equipment, maintenance planning and procedures, and when comparing as-installed controls to the original design. This module will discuss how P&IDs are used, how to read the symbols used on P&IDs, and a real world examples of a P&ID system. | 0.5 | Intermediate |
| Process Chemistry | Process chemistry is chemistry that applies to process systems. An understanding of process chemistry can help process industry personnel understand the chemical reactions that occur in process systems. This course examines how the principles of material balancing, reaction rates, and equilibrium reactions apply to the process industry. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Process Control Charts | Many production facilities use process control charts to track and visually show the behavior and stability of a process over time. This course covers the benefits of using process control charts, the importance of consistency, the many kinds of process control charts, the different elements of process control charts, and how to continually improve the production process. | 0.25 | Intermediate |
| Process Control Fundamentals | Process control simply refers to the control of a process. The main goal of process control is to stabilize process operations in order to consistently produce the desired results, and it can be automatic or manual. In modern processing and manufacturing industries, process control is frequently implemented by automated, computer- based control systems which utilize a number of different "tools." The fundamental building block of these systems is the "process control loop." This module discusses open and closed loop controllers, as well as specific examples of each. | 0.25 | Intermediate |
| Programmable Logic Controllers (PLC's) - Introduction and Theory of Operations | This interactive online course offers a thorough introduction into programmable logic controllers (PLCs). We will begin with an overview of the history and the role PLCs play in factory automation. We will discuss the basic principles of PLCs and core modules of an industrial control system. Functions (analog input and output), disturbed control interface, I/O's (digital inputs and outputs), the COU, and isolation power will also be examined. | 1 | Intermediate |
| Programmable Logic Controllers (PLC's) - Programming a PLC System | "Programming a PLC system provides the basic technical skills and knowledge necessary to work with programmable logic control systems typically found in an industrial or manufacturing environment. This interactive online course is designed to equip the novice with little or no prior PLC programming experience with the basic tools necessary to create a complete PLC program using ladder logic common to most current platforms.<br>Upon completion, you will be able to use programmable logic controllers to solve machine and process problems. A systems approach to PLC programming training is used because the programmable logic controller is one major component of larger manufacturing systems." | 0.5 | Intermediate |
| Programmable Logic Controllers (PLC's) - Design and Installation of a PLC System | "Automation in the manufacturing industry can improve production output and reduce costs. A modern, competitive workforce must be technically literate and know the ins and outs of programmable controllers. New state of the art electrical and electronic devices and equipment use PLCs to increase manufacturing flexibility, simplify processes, and improve safety. Automation also allows a better quality of life for workers while maintaining quality, efficiency, and a market for the product produced. This interactive online course is designed to give you the ability to size and select the controllers necessary for the job at hand. While it is uncommon for engineers to build their own controller designs, it is the engineers' responsibility to effectively communicate their design intentions." | 0.5 | Intermediate |
| Programmable Logic Controllers (PLC's) - Hardware, Inputs, Outputs, Discrete/ Analog | "This interactive online course is designed to help you understand the hardware used in PLC's as well as how discrete and analog inputs and outputs permit the programmer to aid machinery in performing at a more efficient and stable state. Inputs are signals or data received by a system and outputs are the signals or data sent from it. Input/output (I/O) devices are used by a human, or system, to communicate with a computer. For instance, a keyboard is an input device for a computer, while a monitor is an output device. This course will examine the primary causes of faults associated with PLC based control systems: I/O devices and field wiring. We will discuss both hardware and software which will aid in finding these faults quickly. You will be introduced to analog inputs and outputs. These include sensors and actuators that will be of use for industrial measurements and movements." | 0.5 | Intermediate |
| Programmable Logic Controllers (PLC's) - Logic Operations | This interactive online course includes a comprehensive look at basic electrical circuits and includes information on converting a schematic to LAD instruction. Logic operations include any operations that manipulate Boolean values. Boolean values are either true or false and they are named after English mathematician George Boole, who invented Boolean algebra, and is widely considered the founder of computer science theory. They can also be represented as 1 and 0. Normally, 1 represents true, and 0 represents false, but it could be the other way around. | 0.5 | Intermediate |
| Programmable Logic Controllers: Human-machine Interfaces and Troubleshooting | Human-machine interfaces, or HMIs, come in many forms. Generally speaking, the simplest HMIs are the hard=wired pushbutton operator interfaces found on many machines. Other applications may use dedicated graphic interfaces or PC-based HMIs that can communicate through a network and are customized for a particular machine or process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: I/O Communication | The most visible parts of the programmable logic controller system are the input system and the output system, the I/O for short. The I/O systems are the interfaces between the PLC processor and the world. A programmable logic controller is a microprocessor-based system that operates on low voltages, typically 5 volts. The real-world devices that control machines or processes operate on a wide range of voltages and currents, as high as 240 volts AC or 125 volts DC. This course will examine the various ways in which real-world devices can be connected to the input and output systems of a programmable logic controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Installing and Maintaining | Whenever programmable logic controller s(PLC) systems are installed, whenever hardware is modified to fit the needs of changing applications, or whenever the PLC program is changed to accommodate changes in the process or machine operation, the people who do the work must have a thorough understanding of the system. Installation and maintenance in a PLC-controlled system refers not only to the PLC hardware but also to the PLC program. This course will focus on some of the basics involved in installing and maintaining PLC equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Introduction to Programming, Part 1 | Ladder diagrams have been used in machine automation and process control applications for many years. Programmable logic controllers that are programmed to run ladder diagram programs have replaced virtually all hardwired controls. PLCs are cheaper and more versatile, and most importantly, they can be made to perform different functions by simply changing their programs. Once the PLC is installed and connected to the machine or process being controlled, it is almost ready to go. The last thing that needs to be done is to program the PLC to do its job. This course will detail how to enter a simple ladder diagram program into the memory of a programmable logic controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Introduction to Programming, Part 2 | Ladder diagrams have been used in machine automation and process control applications for many years. Programmable logic controllers (PLCs) that are programmed to run ladder diagram programs have replaced virtually all hardwired controls. PLCs are cheaper and more versatile, and most importantly, they can be made to perform different functions by simply changing their programs. Once the PLC is installed and connected to the machine or process being controlled, it is almost ready to go. The last thing that needs to be done is to program the PLC to do its job. This course will detail how to enter a simple ladder diagram program into the memory of a PLC. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Programmable Logic Controllers: Ladder Logic and Symbology | Ladder diagrams have been used to symbolically describe electrical control (PLC) systems for many decades. Early in the development of PLCs, it was decided to use ladder diagrams in their programming interface as well. This was done so that users of PLC systems would be able to see the program in a form that they were familiar with. Virtually all PLCs still use ladder diagrams. This course examines how PLCs use ladder diagrams to perform logic functions and the symbology involved. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Networks and Network Troubleshooting | Most programmable logic controller (PLC) system problems are hardware related, and most of those are in the I/O systems. However, software and network problems do occur and are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This course will examine how to use the PLC programming software to troubleshoot software and network problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Numerics, Part 1 | Programmable logic controllers (PLCs) use not only decimal numbers but also other numbering systems. This course covers the most widely used numbering systems, including how to convert between different numbering systems and how those numbering systems are used by PLCs in typical applications. This course will also examine codes used for storing information in PLCs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Numerics, Part 2 | Programmable logic controllers (PLCs) use not only decimal numbers but also other numbering systems. This course covers the most widely used numbering systems including how to convert between different numbering systems and how those numbering systems are used by PLCs in typical applications. This course will also examine codes used for storing information in PLCs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Program Entry, Testing, and Modification, Part 1 | Installing and maintaining programmable logic controller (PLC) systems involves working with PLC equipment and hardware as well as communications and programming software. A major part of PLC work involves installing, debugging, and changing the program, or project, in a PLC processor. In order to do this work effectively, a thorough understanding of the system and the procedures needed for program entry, testing, and modification is necessary. This course will examine the techniques used initially to install and test a PLC program as well as how to make changes to PLC configurations and programs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Program Entry, Testing, and Modification, Part 2 | Installing and maintaining programmable logic controller systems (PLCs) involves working with PLC equipment and hardware as well as communications and programming software. A major part of PLC work involves installing, debugging, and changing the program, or project, in a PLC processor. In order to do this work effectively, a thorough understanding of the system and the procedures needed for program entry, testing, and modification is necessary. This course will examine the techniques used initially to install and test a PLC program as well as how to make changes to PLC configurations and programs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Programming Functions, Part 1 | Programmable logic controllers (PLCs) have been very successful because they can effectively use bit or discrete I/O instructions to receive inputs from switches and other binary sensors and then drive output field devices such as motor contactors, solenoid valves, and indicators. But modern PLCs are able to do much more by using additional instructions to perform more sophisticated functions such as timing, counting, calculating, manipulating data, and even making decisions. This course will examine many of these “non-I/O” PLC instructions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Programming Functions, Part 2 | Programmable logic controllers (PLCs) have been very successful because they can effectively use bit or discrete I/O instructions to receive inputs from switches and other binary sensors and then drive output field devices such as motor contactors, solenoid valves, and indicators. But modern PLCs are able to do much more by using additional instructions to perform more sophisticated functions such as timing, counting, calculating, manipulating data, and even making decisions. This course will examine many of these “non-I/O” PLC instructions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Troubleshooting Hardware | The human-machine interface, or HMI, can be a very helpful aid to troubleshooting programming logic controller (PLC) hardware. By itself, however, the HMI cannot always provide information needed to troubleshoot a complex PLC system. Other aids must be used to help in hardware troubleshooting. This course will examine how to use the PLC itself, the HMI, and other test equipment to troubleshoot PLC hardware. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pump Basics | Pumps are used to add energy to fluids (gases, liquids, or slurries) to produce flow or increase pressure. This course discusses the construction and operation of the two most basic types of pumps: positive displacement and centrifugal. In addition to how pumps function, it is also covers some of the common terms which are used to describe pump performance. | 0.25 | Intermediate |
| Pump Types and Applications | Pumps are used to add energy to fluids (gases, liquids, or slurries) in order to produce flow or increase pressure. They can perform many different functions, including moving a fluid from one location to another, recirculating a fluid in a closed system, such as in a heating or cooling system, and providing pressure, such as in hydraulic systems. These functions are performed primarily by two different types of pumps: centrifugal and positive displacement. This module describes the most common types of pumps and their applications. | 0.25 | Intermediate |
| Pumping Stations - Pumps, Motors and Electrical Systems | “Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations.” | 2 | Fundamental |
| Pumps Introduction | “Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Understanding the basics of fluid mechanics and the operation of different types of pumps is an essential step toward being able to understand, troubleshoot and improve a wide variety of processes.<br>This course includes a brief overview of fluid mechanics as well as the differences between centrifugal and positive displacement pumps, including their operational characteristics and applications.” | 0.25 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pumps: Fundamentals of Centrifugal Types | This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system. | 2 | Intermediate |
| Pumps: Multistage Centrifugal | This course is designed to familiarize participants with the basic operation, disassembly, and reassembly of a typical multistage centrifugal pump. After completing this course, participants should be able to describe the components and operation of a multistage centrifugal pump and explain how this kind of pump can be disassembled and reassembled when necessary. | 2 | Intermediate |
| Pumps: Operation of Centrifugal Types | This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump. | 2 | Intermediate |
| Pumps: Performance and Inspection | This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations. | 2 | Intermediate |
| Pumps: Reciprocating Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Pumps: Rotary Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Raceways | This course is designed to familiarize participants with various types of raceways used to house electrical wiring. After completing this course, participants should be able to describe various types of raceways, including conduit, wireways, and cable trays. They should also be able to describe procedures for installing raceways in various types of environments. | 2 | Intermediate |
| Radio Operation, Hardware, Telephone Systems, and Electromagnetic Waves | A radio communications system can be broken down into two parts: the transmitter and the receiver. This course will discuss the radio circuit layout, radio waves, and other radio components. | 0.5 | Intermediate |
| Reading Electrical Diagrams, Part 1 | Electrical diagrams are drawings in which lines, symbols, and letter and number combinations are used to represent electrical circuits. In some plants, electrical diagrams may also be called prints, or blueprints. No matter what they are called, however, these drawings are valuable tools for anyone involved in making new electrical installations, locating electrical problems, or modifying existing circuits. There are many different types of electrical diagrams. Each type is drawn differently to provide different information. The four types of electrical diagrams covered in this course are block diagrams, single-line diagrams, schematic diagrams, and wiring diagrams. | 1 | Intermediate |
| Reading Electrical Diagrams, Part 2 | A great deal of electrical maintenance work depends on the ability of maintenance electricians to read and understand electrical diagrams. This course focuses on connection diagrams, interconnection diagrams, raceway diagrams, and logic diagrams. | 1 | Intermediate |
| Reciprocating Compressors, Part 1 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Reciprocating Compressors, Part 2 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Refrigerant Safety and Handling | In air conditioning (AC) and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. Refrigerants must be handled and used carefully as many of them present hazards to the environment and human health. This interactive online course discusses safe methods of working with refrigerants and refrigeration systems. | 0.5 | Intermediate |
| Refrigeration - Compressors, Valves and Piping | The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Properties | Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Selection | Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems. | 0.25 | Intermediate |
| Refrigeration - System Components | There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes. | 0.25 | Intermediate |
| Refrigeration - System Troubleshooting | Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance. | 0.25 | Intermediate |

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# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Refrigeration - Vapor-Compression Cycle | The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage. | 0.25 | Intermediate |
| Relay Basics and Types | A relay is a simple electromechanical switch designed to turn circuits on and off. This course covers relay operation and construction, the advantages and disadvantages of solid state and reed relays, and what time-delay relays are and their function. | 0.5 | Intermediate |
| Reliability Engineering Essentials | This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world. | 1 | Intermediate |
| Reliability Essentials for Operators and Technicians | This course is intended to present the essentials of Reliability. Operators and technicians will be able to apply basic concepts related to reliability to work on system improvement, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but simple probability solutions, as they are found in the real world. | 0.75 | Intermediate |
| Resistors | This course introduces participants to the function and atomic makeup of resistors, common materials used to construct resistors, and the typical styles used in everyday applications. In addition, participants will learn about three ways to rate resistors as well as the different ways to mark resistors. | 1 | Intermediate |
| RFID Applications | RFID technology offers a relatively inexpensive method of tagging virtually any object and then being able to search for and identify that object. This radio-based technology, combined with computers and databases which are able to access large amounts of data, creates a tool that can increase the speed and efficiency of just about any manufacturing, warehousing, transportation, or retailing operation. Adding read/write functionality and/or sensors expands upon the number of potential applications for this technology. | 0.5 | Intermediate |
| RFID Basics | RFID stand for "Radio Frequency IDentification." In RFID systems, "readers" use radio signals to communicate with data "tags." A "tag" consists of an antenna connected to a data-containing integrated circuit that can be attached to almost any object, thereby giving the object a unique identification number which can be read remotely. RFID technology is used to control building access, inventory, mass transit ticketing, and highway tolls, and it is being used to increase the security of new U.S. passports. | 0.5 | Intermediate |
| RFID Implementation | Many decisions must be made when setting up an RFID system. Even after major factors like frequency of operation, reader type, and tag type have been determined, there are still a number of issues that can seriously impact a project's success. These issues deserve consideration both during installation and operation, and include reader antenna location, orientation, and connections, multipath reflection, electromagnetic interference, reader collision, and packaging considerations. | 0.25 | Intermediate |
| RFID Readers | An RFID reader sends commands and information to an RFID tag and receives information from the tag. A reader consists of a transceiver, antenna, controller, and computer interface. Readers communicate with tags using either inductive coupling or backscatter coupling. Both techniques rely on the tag modifying the electromagnetic field to send encoded information back to the reader. Besides handling radio communications, the reader is responsible for performing data verification and passing tag data to a database. | 0.5 | Intermediate |
| RFID Tags | An RFID tag consists of an antenna that is connected to a data-containing integrated circuit. These small tags can be attached to almost any object, thereby giving it a unique identification number which can be read without contacting the object. Tags can be passive, operating on the energy of the radio waves of the reader, or active, which means they are powered by a built-in battery. RFID tags come in just about every shape and size imaginable. The packaging is determined by their intended use and the frequency at which they operate. | 0.5 | Intermediate |
| Rigging: Basic Lifting | This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability. | 2 | Intermediate |
| Rigging: Ladders and Scaffolds | This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds. | 2 | Intermediate |
| Rolling Contact Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Rolling Contact Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Safety Valves | "Safety valves are commonly used in gas and steam systems to relieve excess pressure before it can cause injuries or equipment damage. Safety valves open quickly to release large volumes of gas or steam. This course is divided into two sections. Section 1: Types of Safety Valves, covers the concept of pressure and how it is measured and explores methods of relieving excess pressure through use of a rupture disc systems, relief valve systems, and safety valves. Section 2: Safety Valve Maintenance describes troubleshooting and basic maintenance procedures for a typical safety valve. The section consists of three parts: External Inspection, Disassembly and Inspection, Reassembly and Testing" | 1 | Intermediate |
| Scanning and Tracking Overview | Items need to be tracked for many reasons. In the supply chain, tracking allows a company to identify the current location of items and item counts. This information can be used to forecast item arrival date and future needs, trace items for recall and return, reduce shrinkage, and avoid counterfeit items. Accurate, up-to-date information about quantities and locations can improve the efficiency of the supply chain. This course covers tracking benefits, what to track, and other tracking information. | 0.25 | Intermediate |
| Seals: Gaskets and Packing | The purpose of this course is to examine some ways that leaks in fluid systems are controlled by the use of gaskets, packing, and mechanical seals. At the completion of this course, participants will be able to describe the components and procedures involved in working with gaskets, packing, and mechanical seals. | 1 | Intermediate |
| Series Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. In this course, you will learn about the fundamentals of series circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Series-Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. Components connected in parallel are connected so the same voltage is applied to each component. In this course, you will learn about the fundamentals of series and parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Seven Basic Quality Tools | The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses. | 0.25 | Intermediate |
| Shaft Alignment, Part 1 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will the cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment, Part 2 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment: Reverse Dial and Laser | This course is designed to familiarize participants with equipment and procedures for aligning shafts using the reverse dial method and using a laser system. After completing this course, participants should be able to prepare and set up equipment for a reverse dial alignment and for laser-based alignment. They should also be able to measure shaft misalignment and determine how the misalignment should be corrected. Finally, participants should be able to correct shaft misalignment so that the alignment is within specified tolerances. | 2 | Intermediate |
| Shaft Alignment: Rim and Face | This course is designed to familiarize participants with the basic principles associated with measuring and correcting shaft misalignment using the rim and face method. After completing this course, participants should be able to describe the basic types of misalignment, describe general preparations for a rim and face shaft alignment procedure, and explain how to use the rim and face shaft alignment procedure. They should also be able to explain how to use the rim and face method to measure and correct misalignment on horizontally mounted equipment and on vertically mounted equipment. | 2 | Intermediate |
| Single-Phase AC Induction Motor Maintenance | Most single-phase alternating current (AC) motors are small-horsepower motors designed to operate on standard single-phase AC current. They are found in a number of home and industrial tools, including vacuum cleaners, can openers, power saws, drills, and fans. Electrical maintenance personnel are responsible for keeping the single-phase motors in their plant in top operating condition and for repairing them correctly and quickly if the need arises. This course explains how single-phase AC induction motors operate and how they are classified. It also covers some common procedures for testing and maintaining them. | 1 | Intermediate |
| Sliding Surface Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Sliding Surface Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| SMART Instrumentation in Biological and Chemical Treatment | What is SMART instrumentation? The definition and implementation of "SMART Instrumentation" has evolved over the past five or six decades to its present state where we can literally and figuratively put cruise control on a bicycle; however, it does not ride itself. Proper implementation of a monitoring and control scheme for even a very small system can generate terabytes of useful information per year, all of it meaningless unless correlated, analyzed, trended, structured, and most importantly, acted upon. In this interactive online course, we will discuss the quality and performance specifics, operational reliability, environmental safeguards, and safety risks for control and monitoring systems using SMART instrumentation. We will also cover the reduced costs that can be obtained using SMART instrumentation. | 1 | Intermediate |
| Sources of Electricity, Part 1 | Sources of electricity typically refer to the different types of fuel or power used to generate electricity. With the exception of solar power, these sources all involve spinning a copper wire between magnets. This course describes how electricity is produced through electrochemical production, magnetic induction, and the photoelectric effect. | 1 | Intermediate |
| Symbols, Standards, and Schematics | One way in which electrical components are identified in drawings is by the use of schematic symbols. A schematic symbol either represents a single component in an electrical circuit, such as a pushbutton or motor, or a part of a component, such as with relays and starters. This course covers component representations, component abbreviations, electrical standard organizations, blueprint layout, and blueprint styles. | 0.25 | Intermediate |
| Synchronous Motor and Controller Maintenance | Synchronous Motor Maintenance Power factor correction; Constant Speed under varying load; High efficiency; High torque at low speeds; Low Maintenance; Performance stability and Compatibility with Variable Speed Drives are among the many reasons for the popularity of Synchronous Motor Applications throughout industry. Like all manufactured products, however, Synchronous motor systems must be monitored and maintained or the performance benefits will diminish or disappear. This lesson focuses on the routine maintenance requirements for Synchronous motors and their controllers. | 1 | Intermediate |
| Table Saw Basics | Table saws are essential tools used to accurately cut lumber and sheet materials like plywood and particleboard. This course discusses the location and function of the major components of a typical table saw and safety guidelines to follow while working on and around a table saw. It concludes by illustrating how to adjust the blade height and blade tilt, as well as how to square the blade and set the cut width. Understanding the table saw will allow you to use the saw properly and effectively, and will help prevent you or your co-workers from being seriously injured. | 0.25 | Intermediate |
| Table Saw Operations | Table saws are essential tools used to accurately cut lumber and sheet materials like plywood and particleboard. This course discusses the location and function of the major components of a typical table saw, safety guidelines to follow while working on and around a table saw, several different cut types that can be performed by a table saw, and the techniques used make those cuts. Understanding how the table saw operates will allow you to use it properly and effectively, and will help prevent you or your co-workers from being seriously injured. | 0.25 | Intermediate |
| Temperature and Light Sensors | Temperature sensors are used to help ensure that a process or application is staying within a safe temperature range during operation. They also aid in measuring the temperature of equipment under hazardous conditions such as extreme heat, or when an area is inaccessible by normal means. At the end of this module you will be able to list the different types of temperature sensors and state how the different types of light sensors work. | 0.25 | Intermediate |
| Temperature and Temperature Measurement, Part 1 | Accurate and reliable temperature measuring instruments help industrial facilities operate with maximum safety and efficiency. An understanding of how temperature measuring devices operate depends on an understanding of the concept of temperature and the ways in which solids, liquids, and gases respond to temperature changes. This course is intended to introduce technicians to the principles of operation and some common maintenance procedures related to the three basic types of mechanical thermometers: fluid thermometers, filled system thermometers, and bimetallic thermometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Temperature and Temperature Measurement, Part 2 | Among the many temperature measuring instruments found in industrial facilities are several that use electricity as a basis for temperature measurement. Therefore, technicians are frequently called upon to install, remove, inspect, and troubleshoot a variety of electrical temperature measuring devices. This second course on Temperature and Temperature Measurement covers the basic operating principles behind the most commonly used electrical temperature sensors and an infrared temperature detector, all of which use electricity as a basis for temperature measurement. Also discussed are some common maintenance and troubleshooting procedures related to thermocouples, resistance temperature detectors (RTDs), and thermistors. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| The 5S System: 5S for Safety - New Eyes for the Shop Floor | The 5S System is a set of universal principles and activities that sustain high performance in companies in any industry. This interactive online course will teach you how to focus the 5S System on safety. Understanding and following the 5S System for safety will give you the foundation to improve safety and productivity in your workforce. | 0.5 | Intermediate |
| The 5S System: An Introduction to 5S | Companies in many industries are turning to improvement approaches to maintain the high performance output that their customers demand. This interactive online course is the first of a four part series that teaches you how to carry out basic 5S activities in a target area of your workplace. The 5S System is a systematic approach that organizes and standardizes the workplace. It promotes safety, improved work flow, better product quality, reduced inventory waste, and above all a sense that you, the users, are in control of your work area. | 0.5 | Intermediate |
| The 5S System: Set in Order and Shine | The 5S System is a systematic approach that organizes and standardizes the workplace. It promotes safety, improved work flow, better product quality, reduced inventory waste, and above all a sense that users are in control of their work area. This interactive online course is the third of a four part series. You will learn about the second step in the 5S System: Set in Order and how to organize your workspace. You will also learn about the third step in the 5S System: Shine and how to maintain your equipment. | 0.5 | Intermediate |
| The 5S System: Standardize and Sustain | Many organizations are trying to reduce inventory waste and improve productivity through advance change initiative approaches. The 5S System will allow you to accomplish several specific benefits that support high performance in the workplace. This interactive online course is the final course in the 5S System series. This course will cover steps 4 and 5 of the 5S System: Standardize and Sustain. You will learn how to maintain and monitor the conditions that resulted from activities of the first three S's through standardization. You will also learn the steps to follow to develop new habits in order to sustain the 5S System. | 0.5 | Intermediate |
| The 5S System: Workplace Scan and Sort | An uncluttered, well-organized, and understandable workplace is an essential foundation for lean, low-inventory production. The 5S System is a systematic approach that organizes and standardizes the workplace. This interactive online course is the second of a four part series that teaches you how to complete a workplace scan and how to define a target area for improvement. You will learn how to remove excess and unnecessary items through the Red Tag Technique. You will also learn about the first step in the 5S system: Sort. | 0.5 | Intermediate |
| Three-Phase AC Induction Motor Maintenance | This course covers three-phase alternating current (AC) induction motors, which use magnetic induction to convert three-phase AC power into mechanical energy. They are used throughout industry to drive equipment such as conveyor belts, pumps, air compressors, and generators. Three-phase AC induction motors are economical, efficient, and reliable. But, although they are reliable, they may still break down. Electrical maintenance personnel are responsible for maintaining the three-phase induction motors in their plant and for fixing any AC motors that have broken down. | 1 | Intermediate |
| Total Productive Maintenance: Introduction | The materials in this course are designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM). In this interactive online course, you will learn about the essential elements of TPM, explore the fundamental strategies that are required for a successful TPM effort, and learn how to maintain and manage equipment cooperatively to maximize equipment effectiveness. | 0.5 | Intermediate |
| Total Productive Maintenance: Overall Equipment Effectiveness | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance with a focus on Overall Equipment Effectiveness (OEE). Overall Equipment Effectiveness means ""the amount of productive service equipment provides."" It provides a way to evaluate equipment operation and identify pieces of equipment that present opportunities for improvement. In this interactive online course, you will learn how to calculate OEE so you can analyze a piece of equipment and discover how its effectiveness can be improved. Interpreting the numbers will help you identify causes of loss, or waste and eliminate them." | 0.5 | Intermediate |
| Total Productive Maintenance: Predictive Maintenance | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM) with a focus on predictive maintenance. The early detection of developing problems is fundamental to preventive maintenance. However, some problems are difficult to detect early enough or accurately enough to safeguard equipment effectiveness. In this interactive online course, you will learn that predictive maintenance techniques provide the means to identify deterioration not yet detectable with the five senses, and to measure the amount of deterioration accurately so that parts may be replaced at the optimum time. If parts are replaced too late, equipment effectiveness suffers; if parts are replaced too early, unnecessary costs are generated. In this course, you will also learn that predictive maintenance is a cornerstone of TPM." | 0.5 | Intermediate |
| Total Productive Maintenance: Preventive Maintenance | "This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM) with a focus on preventive maintenance. TPM depends upon good basic maintenance practices. Without a disciplined, systematic approach to preventive maintenance, it is impossible to achieve a high level of equipment effectiveness. In this interactive online course, you will learn how to select the equipment to focus on first, determine which preventive maintenance activities should be performed on that equipment, develop clear and specific instructions for performing those activities, and develop an effective preventive maintenance schedule." | 0.5 | Intermediate |
| Transformer Maintenance | This course is intended to provide participants with a basic background in transformer theory and connection schemes as well as an overview of the most common transformer types and the typical maintenance and testing procedures that apply to them. | 1 | Intermediate |
| Transformers | Substations and switchyards contain various types of transformers. Among them are power transformers, current transformers, and potential transformers. Each of these types of transformers has unique features that distinguish it from the other types of transformers and from other substation and switchyard equipment. In this course, you will learn about these transformers as well as their connections and basic principles. | 1 | Intermediate |
| Transformers, Breakers, and Switches | This course is designed to familiarize participants with basic concepts associated with the operation of transformers, circuit breakers, and various types of switches. After completing this course, participants should be able to explain the basic principles of transformer operation, identify some of the basic components of a transformer, and describe checks that are generally made during a transformer inspection. They should also be able to describe the general operation of a circuit breaker, explain how to reset a tripped circuit breaker and how to rack out a circuit breaker, and describe the basic operation of pushbutton switches and rotary switches. | 1 | Intermediate |

VectorSolutions™

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Troubleshooting Systems and Circuits | Electrical problems may show up anywhere at any time. Some problems are as simple as an abnormal signal value that can be corrected by a minor adjustment. Other problems are not as easy to identify and correct, especially when the cause of the problem is in a non-electrical component or in another system. Regardless of the cause, electricians are responsible for zeroing in on problems whenever they occur and bringing things back to normal. A good way to ensure that the proper actions are taken in response to an electrical problem is to follow a troubleshooting procedure that is both systematic and logical. This course describes the basics of troubleshooting, general guidelines and action steps, and a seven-step troubleshooting method for solving problems. | 1 | Intermediate |
| Understanding Facility Costs | Discusses the relationship between revenue, cost and profit. Illustrates the importance of reducing both big and small waste streams at a facility. | 0.25 | Intermediate |
| Use of Ohm's and Kirchhoff's Laws in DC Circuits | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that commonly is referred to as Ohm's law. Ohm's law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. The letter I is used to represent current, E represents voltage, and R represents resistance. Using these symbols, Ohm's law can be expressed as I=E/R. Kirchhoff's two laws also reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. In this course, participants will learn how to use these laws when working with direct current (DC) circuits. | 1 | Intermediate |
| Using Electrical Test Equipment | Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be "qualified." A person who does not meet this requirement should work under the direct supervision of a qualified person. This interactive online course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. | 1 | Intermediate |
| Valve Basics | Valves are used throughout most industrial work places, but what do you know about them? Given their importance, its surprising that many people don't know what valves do or how they do it. This course offers a solid introduction to many basic concepts related to the valves used in general industry. So whether you're a complete novice, filling some gaps in your knowledge, or just brushing up, Valve Basics has the information you're looking for. | 0.5 | Intermediate |
| Valve Common Problems | Valves are critical in many workplaces, and so it's important to know how to avoid, diagnose, and fix common valve-related problems. This course focuses on flashing, cavitation, choked flow, turbulence, and noise, explaining the causes of each and providing possible solutions. | 0.5 | Intermediate |
| Valve Performance | You may know how valves work, but do you know how to select the right valve for the job based on its performance characteristics? If not, this is the course you've been looking for. Learn all the basic concepts and terms for evaluating a valve, including those for the amount of fluid that can flow through a given valve in a period of time, the distance the valve stem travels from the open to closed position and the relationship between the valve travel distance and the corresponding changes in flow rate. You'll also discover how the performance of a valve can change after its installed in a real system with varying conditions, how well a valve can withstand pressure and prevent leakage, and how control systems can be used to increase the efficiency of valves. | 0.25 | Intermediate |
| Valves: Basic Types and Operation, Part 1 | In most industrial facilities, process systems handle many different types of fluids. The flow of these fluids through plant piping systems is controlled by valves. To keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. In this interactive online course, we will discuss the various uses of valves, their parts, and valve connections. | 0.5 | Intermediate |
| Valves: Basic Types and Operation, Part 2 | The purpose of this course is to provide participants with a general understanding of the basic types and operation of valves. The flow of fluids through plant piping systems is controlled by valves. In order to keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. At the end of this course, participants will have a better understanding of the types, purposes, and applications of various valves. | 1 | Intermediate |
| Valves: Electric and Hydraulic Actuators | This course is designed to introduce participants to various types of electric and hydraulic actuators that are used to control valves in process systems. After completing this course, participants should be able to describe the basic operation of solenoid actuators, motor-operated actuators, and various types of hydraulic actuators. They should also be able to explain the function of a pilot valve and describe problems associated with hydraulic actuators. | 2 | Intermediate |
| Valves: Introduction to Actuators | Some of the valves that are used to control the flow of fluids in process systems have to be opened, closed, or throttled frequently. Manually positioning these valves using handwheels or levers is not always practical. Instead of handwheels or levers, actuators are often used to position the valves. This module is designed to introduce participants to actuators in general and pneumatic actors in particular. | 1 | Intermediate |
| Variable Speed Drives: Common Applications | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. In addition, the motor and controller combination, the drive, is frequently integrated into an existing production process or system. This course will examine some of the common applications for VSDs. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 1 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 2 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Installation | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. This course will examine a typical VSD installation, how to get it running, and how to keep it running while making its operation and maintenance as trouble-free as possible. | 1 | Intermediate |
| Variable Speed Drives: Introduction to VSDs | Variable speed drives (VSDs) are used throughout the industry to electronically regulate the speed and the torque of motors. With nearly half the energy in the world consumed by rotating machinery, the applications for VSDs are enormous, and their use is spreading rapidly. When applied and installed properly and when operated and maintained correctly, VSDs can substantially reduce the power required for the work being done and can provide the precision control that is now demanded by modern industry throughout the world. | 1 | Intermediate |

# Industrial Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Variable Speed Drives: Programming AC Controllers | This course describes alternating current (AC) controller setup procedures, AC controller frequency options and other parameter settings, and AC controller I/O configuration. The course illustrates how to interpret AC controller fault monitoring, alarms, and diagnostics. Finally, the course explains flux vector programming. | 1 | Intermediate |
| Variable Speed Drives: Programming DC Controllers | Wherever variable speed drives (VSDs) are used, they must be programmed to meet the needs of the specific application. Sometimes this means little more than firing them up and letting them run, maybe just punching the drive up to the required speed. But more often it means a variety of settings must be programmed into the drive. This course will focus on programming the controllers for variable speed direct current (DC) motors. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 1 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 2 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: Systems and Integration | When variable speed drives (VSDs) are used in industrial applications, they usually are not used by themselves. Although single motors and single controllers are sometimes used in isolated applications, the more usual application is one in which many motors and many controllers are interlinked into a larger automated system that includes many types of processes. This course will examine the ways in which VSDs and automated systems are linked together. | 1 | Intermediate |
| Vehicle Brake Basics | Brakes are mechanical devices used to slow or stop a moving object, or to prevent the movement of a stationary object. This course discusses the hydraulic braking systems typically installed in modern automobiles and light duty trucks. Similar systems can be used on rotating equipment and machinery. Brake pedal design, vacuum-assisted brake boosters, "master" and "slave" cylinders, emergency brakes, anti-lock brake systems, and the importance of regular inspections and maintenance are all covered. | 0.25 | Intermediate |
| Wood and Insulation Basics | Almost any type of construction or remodel job, whether a do-it-yourself weekend project or a professional one, requires basic knowledge about which wood to choose, as well as what kind of insulation works best for any given situation. Knowing basic details about different types of wood and the proper use of insulation will help you complete your projects more efficiently. | 0.25 | Intermediate |
| Wrenches and Hammers | Wrenches and hammers are two of the most commonly used tools. From do-it-yourself weekend projects in the garage at home to large scale industrial construction, it is almost inevitable that wrenches and hammers of one kind or another will play a significant role. They are incredibly helpful, and make difficult jobs much easier and more efficient. This course will describe the different types of wrenches and hammers available as well as safe work practices for using them. | 0.5 | Intermediate |

# Power Generation

| Title | Description | Hours | Level |
|---|---|---|---|
| Analysis of Boiler Efficiency | This course explains how air heaters and preheaters affect boiler efficiency and heat rate. After completing this course, participants should be able to identify boiler parameters commonly associated with air heaters and preheaters and explain how boiler efficiency and heat rate are affected by changes in those parameters. They should also be able to explain how problems with air heaters and preheaters can be recognized and corrected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Analysis of Turbine Efficiency | This course explain how a typical turbine is designed to convert energy to work and how turbine efficiency is affected by problems with internal turbine components. After completing this course, participants should have an understanding of how internal components, particularly the turbine blades, affect turbine efficiency and heat rate. They should also be able to identify ways to recognize and correct efficiency problems associated with a turbine. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Ash Handling | Ash is the solid residue that is produced when coal is burned. To keep a coal-fired plant operating, ash must be collected, removed from the plant, and properly disposed of. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Auxiliary Equipment | Auxiliary equipment is used to perform support operations in a typical coal handling system. Support operations, such as weighing coal and collecting coal samples, help provide important information for coal handling and other plant operations. This training program explains why coal is weighed and sampled, and describes some of the auxiliary equipment used to perform these jobs. It also covers some of the preventative maintenance tasks that coal handlers may perform to keep auxiliary equipment in good working condition. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Barge Unloading | Coal barges are generally loaded with coal dumped from trains. The loaded barges are taken to plants by tugboats, which also take the empty barges away to be reloaded. This course focuses on the operations involved in handling barges from the time they arrive at a plant until the empty barges are taken away. It examines in detail the components and operation of two types of barge unloaders: a bucket elevator unloader and a clamshell, or traveling tower, unloader. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Efficiency 1: Air Heaters and Preheaters | This course explains how air heaters and preheaters affect boiler efficiency and heat rate. After completing this course participants should be able to identify boiler parameters commonly associated with air heaters and preheaters and explain how boiler efficiency and heat rate are affected by changes in those parameters. They should also be able to explain how problems with air heaters and preheaters can be recognized and corrected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Efficiency 2: Oil and Gas Fired Furnaces | This course is designed to explain how the windbox, the burners, and the furnace affect the efficiency and heat rate of oil and gas fired boilers. After completing this course, participants should be able to explain how the windbox, the burners, and the furnace operate together to sustain combustion, and how problems with these components can be recognized and corrected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Efficiency 2: Windboxes, Burners, and the Furnace | This course is designed to explain how the windbox, the burners, and the furnace affect boiler efficiency and heat rate. After completing this course, participants should be able to explain how the windbox, the burners, and the furnace operate together to sustain combustion, and how problems with these components can be recognized and corrected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Efficiency 3: Superheaters, Reheaters, and the Economizer | This course describes how superheaters, reheaters, and the economizer affect boiler efficiency and heat rate. After completing this course, participants should be able to describe how superheaters and reheaters add heat to steam, and how the economizer adds heat to feedwater. They should also be able to explain how attemperators control steam temperatures and protect superheaters and reheaters; and how problems with superheaters, reheaters, and economizers affect heat rate. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Feedwater - Chemical Additives | The primary function of a boiler is to transfer heat from hot gases generated by the combustion of fuel into water until it becomes hot or turns to steam. The steam or hot water is then used in a variety of facility processes. Boiler feedwater often contains impurities, which impair boiler operation and efficiency. To improve feedwater quality and steam purity, as well as correct other problems caused by impurities, chemicals can be injected directly into the feedwater or steam. Chemical additives increase boiler efficiency, reduce fuel, operating and maintenance costs, minimize maintenance and downtime, and protect equipment from corrosion and extend equipment life. | 0.5 | Intermediate |
| Boiler Feedwater - Deaeration | A boiler recovers heat from burned fuels. This is accomplished when high pressure boiler feedwater inside tubes located throughout the boiler is heated and turns into steam or hot water. The steam or hot water is then used in a variety of facility processes. Boiler feedwater often contains dissolved oxygen, which is a common cause of corrosion inside boilers. The dissolved oxygen reacts with the boiler's waterside metal surfaces to damage boiler tubes, headers, and drums. Corrosion can become more aggressive depending on the concentration of gas, pH, and temperature of the boiler feedwater. Therefore, the purpose of deaeration is to remove dissolved oxygen, carbon dioxide, and other non-condensable gases from boiler feedwater. | 0.25 | Intermediate |
| Boiler Feedwater - Demineralizer | A boiler recovers heat from burned fuels. This is accomplished when high pressure boiler feedwater inside tubes located throughout the boiler is heated and turns into steam or hot water. The steam or hot water is then used in a variety of facility processes. Boiler feedwater often contains inorganic salts, dissolved impurities, and foreign particles, which generate corrosion problems and decrease efficiency due to damage to heat transfer surfaces. Demineralizers use ion exchange resins to remove these impurities in the raw water used for makeup in boiler feedwater. | 0.25 | Intermediate |
| Boiler Fundamentals | Boilers are commonly used to provide a source of steam for industrial plants. The plant personnel who operate and maintain boilers need to have a good working knowledge of the fundamental principles of boiler operation. They also have to know how to monitor and control the operation of boilers in their plant and the systems associated with the boilers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Power Generation (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Boilers: Combustion, Water, and Steam | This course is designed to familiarize participants with some of the equipment and flow paths associated with combustion and steam production in a boiler. After completing this course, participants should be able to describe the parts and operation of typical gas burners, oil burners, and stokers. They should also be able to explain how air flow is produced in a boiler, why the proper fuel-to-air ratio must be maintained, and how air heaters improve the efficiency of boiler operation. Finally, participants should be able to explain how water circulation occurs in a boiler and describe the use of economizers and moisture separators. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Building Air Systems | A building air system provides a controlled environment for personnel working in the building and provides the needed air adjustments. This is done by using exhaust and air makeup to control contaminates and preserve the building structure. This course describes the purpose of building air systems, makeup and exhaust air systems, conditioning methods, and air balance. | 0.25 | Intermediate |
| Bulldozers | The coal that is delivered to a plant is often unloaded and sent directly to bunkers that supply the boiler furnaces. However, when the bunkers are full, the coal delivered to the plant is typically deposited on storage piles. Bulldozers are used to spread coal out on these storage piles and to reclaim coal from the piles when it is needed in the plant. Bulldozers are also used to manage coal piles to reduce the risk of fires and to minimize loss from erosion due to wind and rain. Coal handlers who use bulldozers must know how to operate them safely and correctly, and how to take care of them properly. This training program focuses on the use of bulldozers in coal handling operations. Emphasis is placed on practical applications, inspection procedures, minor maintenance procedures, and basic operating procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Car Dumpers | Coal handlers operate and maintain the equipment used to transport and unload coal cars. This equipment may include rotary car dumpers, positioners, and retarders. To help coal handlers develop the skills needed to work safely with this equipment, this course describes how rotary car dumpers, positioners, and retarders work. It also explains how this equipment is generally operated during receiving operations, and how it is maintained. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Handling Overview, Part 1 | Coal handlers work with a variety of equipment designed to help them perform the job of keeping a plant supplied with coal. This equipment, known collectively as the coal handling system, provides an efficient way of carrying out basic coal handling operations, which includes receiving, transporting, storing, and preparing coal. Coal handling systems can also be designed to perform other functions such as weighing coal, taking coal samples, controlling coal dust, and removing ash. This course explains how coal handling systems receive, transport, and store coal outdoors. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Handling Overview, Part 2 | Coal handlers work with a variety of equipment designed to help them perform the job of keeping a plant supplied with coal. This equipment, known collectively as the coal handling system, provides an efficient way of carrying out basic coal handling operations. These operations include receiving, transporting, storing, and preparing coal. Coal handling systems can also be designed to perform other functions such as weighing coal, taking coal samples, and controlling coal dust. In addition, coal handlers may be involved in removing the ash produced when coal is burned. It is important for coal handlers to be familiar with the various types of coal handling equipment and with the jobs that they need to perform to keep a coal handling system operating safely and efficiently. This training program explains how coal handling systems generally operate. It also describes equipment that carries out some of the major operations and support functions involved in coal handling. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Handling Overview, Part 3 | Coal handlers work with a variety of equipment designed to help them perform the job of keeping a plant supplied with coal. This equipment, known collectively as the coal handling system, provides an efficient way of carrying out basic coal handling operations, which includes receiving, transporting, storing, and preparing coal. Coal handling systems can also be designed to perform other functions such as weighing coal, taking coal samples, controlling coal dust, and removing ash. This course describes how coal handling systems collect and remove ash and describes the jobs coal handlers need to perform to keep a coal handling system operating efficiently. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Pile Management | Plants that need to burn large quantities of coal also need to maintain large coal reserves. The most common way of storing coal is in large outdoor storage piles. Coal pile management involves moving coal to and from storage piles, and maintaining the piles to deal with coal pile fires and environmental factors such as rain and wind. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Preparation Equipment | Coal preparation is an important aspect of coal handling. When coal leaves a plant's coal handling system, it generally is sent to one of two places. Depending on the design of the plant, the coal may go directly to a boiler furnace to be burned, or it may go through coal processing equipment, such as a pulverizer, before it is burned. In either case, coal usually has to be prepared during coal handling so that the pulverizing and burning will be more efficient. Coal preparation involves the use of special equipment that operators are often required to inspect, maintain, and troubleshoot. Operating coal preparation equipment properly can help prolong the life of the equipment and maximize the efficiency of the coal handling system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Yard Maintenance | Coal is a heavy, abrasive, and corrosive material that can be difficult for equipment to handle. To handle coal, equipment must often run at high speeds and carry heavy loads. To do its job, coal handling equipment must be continually maintained to ensure it stays in good running condition. This course examines the maintenance jobs that are commonly performed on coal handling equipment and describes how coal handlers may be involved with equipment maintenance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Combined Cycle: Abnormal Operations | In this course, we'll look at conditions that are associated with abnormal operations in a combined cycle power plant. We'll examine some problems that can occur during a cold startup and a routine shutdown. We'll also look at abnormal conditions associated with the heat recovery steam generator (HRSG) and the steam turbine/generator during routine operation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Power Generation (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Combined Cycle: Distributed Control Systems | In this course, we'll focus on distributed control systems (DCS) as they relate to combined cycle power plants. We'll look at the overall purpose of a DCS and examine the components that make up the system. We'll also look at how a DCS can be used to monitor normal plant operation, and change device states and set points. And we'll see how a DCS can be used to troubleshoot malfunctions and abnormalities. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combined Cycle: Heat Recovery Steam Generators | In this course, we'll focus on heat recovery steam generators as they apply to combined cycle power plants. We'll cover some fundamentals related to the basic types of heat recovery steam generators (HRSGs) and to some general design considerations and we'll look at the components found in the various sections of an HRSG. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combined Cycle: Normal Operations | In this course, we'll focus on the normal operation of a combined cycle power plant. We'll look at an overview of the major components of a combined cycle plant, and we'll see how procedures for plant control are developed and updated. We'll also look at the procedures involved in starting up and shutting down a plant, and we'll see how a distributed control system (DCS) helps operators monitor and maintain a plant during normal operation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Turbine: Abnormal Operations | In this program, we'll cover some problems that can occur during operation of a simple cycle combustion turbine that drives an electric generator, and we'll see how operators can deal with these problems. We'll look at problems that can occur during startup and shutdown. We'll also look at some of the abnormal conditions that can occur within the different component sections of the turbine generator unit, and its support systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Combustion Turbine: Components | In this course, we will focus on the components that make up a typical combustion turbine, including those related to the intake and compression of the inlet air, the combustion of the fuel/air mixture, and the expansion of hot combustion gases through and out of the turbine. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Turbine: Normal Operations | In this course, we'll focus on operator responsibilities that are typically associated with the normal operation of a simple cycle combustion turbine that drives an electric generator. We'll see pre-startup checks that operators perform, and we'll look at steps involved in starting up the unit and then shutting it down. We'll also identify conditions that operators monitor during normal turbine operation, and we'll cover some routine inspection and maintenance tasks that operators may perform. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Turbine: Principles | In this course, we will focus primarily on combustion turbines that drive electric generators. From this perspective, we will go over the general principles of operation for a combustion turbine. We will look at the fundamentals of how combustion turbines work. We will examine factors that affect turbine efficiency, and we will see some of the many different applications in which combustion turbines are used. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Turbine: Support Systems, Part 1 | In this course, we will focus on several vital support systems that are associated with combustion turbines including the inlet air system, the lubricating oil system and the starting system, and different types of fuel systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Turbine: Support Systems, Part 2 | In this course, we'll cover three support systems that are critical for safe and efficient operation of a combustion turbine. These are the control system, the fire protection system, and the environmental system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Compressed Air Systems | Compressed air systems are used in a variety of industries to supply process requirements, operate pneumatic tools and equipment, and to meet instrumentation needs. This course discusses compressed air system components, safety guidelines to follow while working with and around compressed air systems, common air compressor designs, compressed air conditioning systems, and air pressure and volume measurements. | 0.25 | Intermediate |
| Condenser Efficiency | This course is designed to teach participants how condenser performance can affect the efficiency of a generating unit. After completing this course, participants should be able to identify energy flows into and out of a condenser and know how these flows are related to the efficiency of the condenser and to unit heat rate. Participants should also be familiar with different methods of determining condenser efficiency, such as by checking parameters and indicators and using condenser performance curves and circulating water pump selection curves. In addition, participants learn how changes in condenser vacuum can affect unit heat rate and operating costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Control Equipment | The components of a coal handling system are operated with control equipment. The proper operation of the control equipment ensures that the components are started and stopped in the correct sequence so that coal moves smoothly from one component to the next. If one of the components in the sequence is not operated properly, the entire system could come to a stop, and equipment could be damaged. This course describes how control equipment is used to operate coal handling components so that they work together smoothly as a system. Troubleshooting procedures that can be used to determine the cause of a coal handling system malfunction also are covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Conveyors | Coal handlers operate and maintain the equipment used to transport coal to a plant for burning or to a coal pile for storage. This equipment includes conveyors, feeders, and chutes. Coal handlers must also inspect and maintain equipment such as magnetic separators and cleaning devices, which help transport operations run smoothly. This course explains how the equipment involved in transport operations works, and how it should be inspected and maintained. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cooling and Chilled Water Systems | When equipment runs, it generates heat. Overheating can lead to equipment malfunctions and possible downtime. In order to prevent this, cooling and chilled water systems are set up to continually remove heat from the components to keep them within a desired temperature range. This course describes the design of cooling and chilled water systems as well as the principles of operation for both chilled and cooling water systems. | 0.25 | Intermediate |

# Power Generation (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Cycle Efficiency | This course is designed to familiarize participants with the concept of a boiler envelope and with the input/output method and the heat loss method of determining boiler efficiency. After completing this course, participants should be able to explain what a boiler envelope is and identify energy flows into and out of the boiler envelope. They should also be able to describe how the input/output method and the heat loss method are used to determine boiler efficiency, and identify factors that must be considered when each method is used. Also covered are factors over which the boiler operator has some control. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Dust Control | Dust control is an important part of coal handling operations. This course looks at where coal dust is produced, how it can spread, and how it can be kept from spreading. Specific attention is directed to equipment and techniques that are commonly used to control dust in coal handling systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Dust Control Equipment, Part 1 | Dust from coal handling operations must be controlled to protect personal health, equipment, and the environment. There are many different types of equipment used to control coal dust, and operating it may be part of a coal yard worker's job. Dust control equipment is classified into two main groups: equipment used to control dust inside buildings and equipment used to control dust outside in the coal yard. This course focuses on the equipment used in the coal yard. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Dust Control Equipment, Part 2 | Dust from coal handling operations must be controlled to protect personal health, equipment, and the environment. There are many different types of equipment used to control coal dust, and operating it may be part of a coal yard worker's job. Dust control equipment is classified into two main groups: equipment used to control dust inside buildings and equipment used to control dust outside in the coal yard. This course focuses on the equipment used in the coal yard. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Efficient Boiler Operation | This course explains some of the fundamental aspects of turbine efficiency. After completing this course, participants should be able to identify energy flows that enter and exit a typical turbine generator set, and explain how to determine the efficiency of a turbine. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Efficient Condenser Operation | This course is designed to explain how three general categories of problems can affect condenser vacuum, efficiency, and unit heat rate. After completing this course, participants should be able to describe how tube fouling and blockages, air leakage into the condenser, and circulating water flow and temperature problems affect efficiency and unit heat rate. They should also be able to identify ways to recognize and respond to these problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Efficient Operation of Oil and Gas Fired Boilers | This course describes how changes in parameters can affect boiler efficiency and heat rate. After completing this course, participants should be able to explain how changes in key boiler parameters can affect boiler efficiency and heat rate, how some of the possible causes of those changes can be identified, and how problems that can cause parameters to change can be recognized during a boiler walkdown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Efficient Power Plant Operation | This course is designed to explain why unit heat rate is higher than normal during certain operating conditions and describe what can be done to prevent additional efficiency losses from occurring during these conditions. After completing this course, participants should be able to explain how careful planning and following plant procedures can reduce efficiency losses during unit startups and shutdowns. They should also be able to explain why parameters should be kept at their setpoints during reduced power operation, and how changes in weather conditions affect efficiency and heat rate. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Electrical Energy and Power | The forms of energy commonly used to produce electrical energy are known as primary energy sources, which include coal, oil, natural gas, and nuclear energy. These sources are refined, burned, or processed in order to create the electrical energy used to power homes and appliances. In this course, participants will learn to define electrical energy and power as well as list the different units used to measure electrical power. | 1 | Intermediate |
| Environmental Protection Systems - Air Pollution | This course is designed to familiarize participants with the basic concepts associated with what air pollution is and how it can be controlled. After completing this course, participants should be able to explain what air pollution is, where it can come from, and how it can be monitored. They should also be able to explain how air pollution from industrial facilities can be controlled. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Environmental Protection Systems - Water Pollution | This course explains how water pollution standards are expressed, what the standards are for certain pollutants, and where many pollutants come from. The course also discusses how industrial facilities keep their discharges of potential pollutants below the standards set for them and describes some of the techniques and types of equipment that industry uses to prevent the discharge of pollutants into the environment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Feedwater Heater Efficiency | This course is designed to teach participants how to recognize whether feedwater heaters are operating properly. After completing this course, participants should understand how a feedwater heater works and the role it plays in a generating unit. They should also know how to monitor the operation of a feedwater heater to maintain maximum efficiency and how to recognize and identify feedwater heater problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fluidized Bed Boilers | Conventional solid fuel power boilers burn the fuel in a fixed bed. In a fluidized bed boiler, hot air is blown at a high velocity up through a bed of sand, limestone, and ash causing the solid particles to fluidize, or behave like a liquid. Fluidization provides good mixing and allows for effective combustion when fuel is added. Fluidized bed combustion (FBC) provides several advantages for burning solid fuels, including higher efficiency, lower emissions, and the ability to burn low quality (e.g. high moisture) fuels. This course will focus on the operation of bubbling and circulating fluidized bed boilers. | 0.5 | Intermediate |
| Fresh Water Systems | Water is used in virtually every step of the pulping and papermaking process. It is used for cooking, bleaching, washing and fiber transport. It is used for steam creation and cooling. This module covers the major sources of mill raw water, the contaminants commonly found in raw water, as well as raw water testing and treatment. | 0.5 | Intermediate |

# Power Generation (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Furnace Fundamentals | An important part of an operator's job when working with any furnace is to make sure that the furnace is running efficiently in order to save fuel, maximize the amount of heat that is produced, and minimize the amount of heat that is wasted. More importantly, careful furnace operation helps prevent explosions, injury, and damage to equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Furnace Introduction | Furnaces are an important source of heat for many industrial facilities. Furnaces, which can also be referred to as fired process heaters, are basically enclosed structures that produce heat by the combustion of fuels. This course will review the major components that make up furnaces, explain how combustion takes place inside a furnace, and identify the different flow paths inside a furnace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Furnaces: Operating Conditions | This course is designed to familiarize participants with general operator responsibilities associated with operating a furnace. After completing this course, participants should be able to identify instrumentation used to monitor furnace operating conditions and explain the basic operating principles, temperature control systems, and process fluid control systems. They should also be able to identify conditions that should be checked during furnace operations and explain how to detect and respond to abnormal conditions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Furnaces: Startup and Shutdown | This course is designed to familiarize participants with basic procedures for starting up and shutting down a furnace. After completing this course, participants should be able to describe basic procedures for preparing a furnace for startup, establishing the flow of process fluid, and lighting the burners. They should also be able to describe general considerations and basic procedures associated with planned furnace shutdowns and unplanned, or emergency, furnace shutdowns. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Handling Wet and Frozen Coal | Wet and frozen coal can create difficult problems for coal handlers, including clogging equipment and impeding or blocking coal flow. However, many of the problems resulting from wet or frozen coal can be greatly reduced, and sometimes entirely avoided, by following certain precautions, by properly using specialized equipment, and, in some cases, by planning ahead. This training program covers the types of problems caused by wet and frozen coal, as well as methods and equipment that are commonly used to avoid, minimize, or respond to these problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Introduction to Heat Rate Improvement | By the conclusion of this course, participants should be able to describe what heat rate is and how it can be determined, and explain how the operating efficiencies of units and components can be determined. They should also be able to describe how operations, maintenance, and engineering groups contribute to the efficient operation of a power plant. | 1 | Intermediate |
| Multi-Stage Turbines | The steam turbine generators used today produce approximately 85% of the electricity in the United States. In a typical turbine, steam flows in at a speed near 100 miles per hour and at temperatures from 400 to 950 degrees Fahrenheit. This course describes the differences between an Impulse and Reaction turbine, why steam turbines are multi-staged, the different types of turbine blade compounding arrangements, or stages and how they relate to turbine efficiency. | 0.25 | Intermediate |
| Operator Responsibilities: Plant Production and Safety | The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with. | 0.5 | Intermediate |
| Paper Machine Seal Water Systems | Seal water systems used on paper and board machines are used to cool and lubricate key equipment, create seals, and increase the efficiency and operation of key equipment. This course discusses the typical equipment used in seal water systems, as well as safety guidelines and hazards around seal water systems. | 0.25 | Intermediate |
| Power Boiler Air and Combustion | The purpose of a power boiler is to create steam by applying heat energy to water. The necessary heat energy is produced by combustion. Fuel and oxygen are required for combustion to occur. To ensure complete combustion of the fuel in the boiler furnace, enough air must be thoroughly mixed with the fuel. Each power boiler fuel requires a different amount of air for complete combustion and the combustion controls must be designed to provide it. This module describes the role of combustion in power boilers as well as major components and flows of power boiler air systems. | 0.25 | Intermediate |
| Power Boiler Ash Handling | The purpose of a power boiler is to create steam by applying heat energy to water. Many power boilers burn solid fuels, such as wood residue (biomass) and coal, which produce large amounts of ash that must be handled and disposed of. Each solid fuel boiler has a specially designed system to safely remove, transport and dispose of the ash generated during operation of the boiler. This module describes how ash is generated and the typical components used to remove ash in a power boiler. | 0.25 | Intermediate |
| Power Boiler Basics | The purpose of a power boiler is to create steam by applying heat energy to water. The steam produced by the power boiler can be transferred through piping to a number of applications throughout industrial facilities. This module describes the purpose, design, operation, and key components of a power boiler. | 0.25 | Intermediate |
| Power Boiler Feedwater and Steam | The purpose of a power boiler is to create steam by applying heat energy to water. The water supplied to the boiler, which is converted to steam, is called feedwater. This feedwater system removes any impurities in the condensate, which is steam converted back to water, preheats and pressurizes it then returns it to the power boiler steam drum. The power boiler control system maintains the proper flow of feedwater to the boiler. As the hot combustion gases pass from the furnace through the generating tube bank, steam is formed in the tubes and rises to the steam drum. This module describes the major components and flows associated with feedwater and steam in a power boiler. | 0.5 | Intermediate |
| Power Boiler Fuel Supply Systems | In order for a boiler to convert water to steam, a fuel source must release its energy in the form of combustion in the boiler furnace. Fuel systems play a critical role in the performance of a boiler. The most commonly used fuels in power boilers are natural gas, fuel oil, coal, and wood (biomass). Each of these fuels have different physical properties that require delivery systems that are unique to that fuel. Fuel systems should be properly operated and maintained to run efficiently. | 0.25 | Intermediate |
| Power Plant Boilers: Abnormal Conditions and Emergencies | This course is designed to familiarize participants with common boiler problems and some of the basic causes of boiler explosions. After completing this course, participants should be able to describe basic procedures for dealing with the loss of certain boiler auxiliaries, leaks, overpressure conditions, and equipment fires. They should also be able to describe some basic causes of boiler explosions and explain what operators can do to help prevent boiler explosions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

VectorSolutions™

# Power Generation (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Power Plant Boilers: Combustion and Operation | This course is designed to familiarize participants with the basic principles associated with combustion in a boiler and the flow of air and combustion gases during boiler operation. After completing this course, participants should be able to identify the elements needed for combustion in a boiler, explain how fuel is delivered to the burners, and describe the parts and operation of various types of burners. They should also be able to describe the air and gas flow path through a boiler and describe methods used to remove particulates and harmful gases from combustion gases. In addition, participants should be able to explain when and why vents, drains, blowdown valves, and soot blowers are used. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Boilers: Normal Operations | This course is designed to familiarize participants with the tasks involved in operating boilers under normal conditions. After completing this course, participants should be able to explain what steady state conditions for a boiler are and describe typical operator concerns associated with the energy losses that occur during operation of a boiler under steady state conditions. They should also be able to describe operator responsibilities for monitoring and controlling the boiler's steam/water system, air/gas system, steam temperature, and ash removal systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Boilers: Startup and Shutdown | This course is designed to familiarize participants with basic techniques for starting up and shutting down drum-type boilers and once-through boilers. After completing this course, participants should be able to describe basic procedures for performing a cold startup of a drum-type boiler, lighting off the furnace, warming up the boiler, and establishing the boiler flame. They should also be able to describe basic procedures for shutting down a typical drum-type boiler. In addition, participants should be able to compare and contrast the startup and shutdown of a drum-type boiler with the startup and shutdown of a once-through boiler. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Boilers: Water and Steam | This course is designed to familiarize participants with the basic principles associated with the flow of water and steam in various types of boilers. After completing this course, participants should be able to describe the flow path of water through a typical drum-type boiler, explain the differences between natural circulation and controlled circulation, and describe the functions and components of a typical boiler drum. They should also be able to describe the flow path of steam from the boiler to the condenser in a typical generating unit and explain the function of each component in the flow path. In addition, participants should be able to explain why some boilers operate above the critical point, describe the flow path of water in a once-through supercritical boiler, and explain how steam pressure is maintained in a drum-type boiler and in a once-through boiler. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Efficiency: Problems and Analysis | This course is designed to reinforce major concepts taught in the heat rate improvement series by having participants participate in the identification and analysis of problems that affect heat rate. After completing this course, participants should be able to identify some of the problems that commonly occur in power plants by using related parameters, and describe how heat rate and fuel consumption are affected by these problems. The final segment in the course summarizes key points from the courses in the heat rate improvement series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant Operation: Safety and Pollution Control | This course is designed to familiarize participants with some of the basic concepts associated with personal protection, tagging procedures, and pollution control. After completing this course, participants should be able to describe some of the basic protective equipment that operators commonly use and explain how a tagging system protects personnel who work on or around plant equipment. They should also be able to describe methods of controlling air pollution, thermal pollution, water pollution, and noise pollution. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Protection: Boiler and Turbine Protections | This course is designed to familiarize participants with devices and techniques used to protect boilers and turbines. After completing this course, participants should be able to identify common boiler and turbine problems and explain how they can be prevented or minimized. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Protection: Fundamentals | This course is designed to familiarize participants with various types of hazards that may exist in a power plant. After completing this course, participants should be able to identify common types of mechanical and electrical hazards, temperature and pressure hazards, and fire and chemical hazards. They should also be able to describe devices and techniques that can be used to prevent or minimize these hazards. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Protection: Integrated Systems | This course is designed to familiarize participants with the interaction of various systems that work together to protect plant equipment. After completing this course, participants should be able to interpret logic diagrams that represent the functions carried out by plant protection equipment. They should also be able to identify conditions that can cause a boiler trip, a turbine trip, and a generator trip. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Systems: Condensate and Feedwater Systems | This course is designed to familiarize participants with the basic layout of a typical condensate and feedwater system and the basic operation of the system's individual components. After completing this course, participants should be able to identify the components in a condensate and feedwater system and describe the basic operation of each component. They should also be able to explain how the system normally operates, describe operator responsibilities associated with normal operation, and identify some common operating problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Thermodynamics | After completing this course, participants should be able to explain the basic processes of a typical steam/water cycle and the way the efficiencies of those processes relate to the overall efficiency of the plant. Participants should also be able to explain the effects of changing or modifying the components of a steam/water cycle and to explain what Rankine efficiency is. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Power Generation (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Power Plant Turbines: Bearings and Operation | This course is designed to familiarize participants with basic principles associated with turbine shaft bearing lubrication, turbine speed control, and turbine operation. After completing this course, participants should be able to identify and describe the functions of the components of a typical turbine lube oil system. They should also be able to describe the basic components and operation of a typical turbine speed control system. In addition, participants should be able to describe operator responsibilities associated with turbine startup, operation, and shutdown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Turbines: Steam Flow | This course is designed to familiarize participants with basic principles associated with the construction and operation of steam turbines. After completing this course, participants should be able to state the functions of the main parts of a typical turbine and describe how steam causes impulse blades and reaction blades to turn a turbine's wheels. They should also be able to describe the purpose and operation of a gland steam seal system, a gland steam seal exhaust system, a carbon seal, and a water seal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant: Condensate and Feedwater System | This course will describe the basic layout of a typical condensate and feedwater system, the basic functions of the system components, and general operation of each component. It will also describe the normal operation of a typical condensate and feedwater system, identify operator responsibilities associated with normal operation, describe some operating problems that may occur, and explain how operating problems can be dealt with. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Condenser and Circulating Water | The condenser and the circulating water system play a vital role in plant operation and efficiency by completing the steam/water cycle. Part of an operator's job involves monitoring and controlling the condenser and circulating water system. Therefore, it is important to have a good understanding of how these components work and what problems can affect them. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Power & Energy | Power plant operators are responsible for maintaining power production and making sure the plant operates safely and efficiently. To see why this is important, it is helpful to understand how an individual plant fits into a power system providing electricity and distributing electricity to customers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Power Generation | This course covers topics related to power generation at power plant systems, including voltage induced in an alternating current (AC) generator, generator output current, generator excitation, hydrogen cooling systems, and stator cooling systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Steam Cycle | In a power plant, the steam cycle is essential to the production of electricity. This course will familiarize participants with basic concepts associated with the flow of steam and water through a power plant. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Steam Systems | Steam Systems is a course designed to familiarize participants with the design and operation of the steam systems found in a typical power plant. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Principles of Heat Transfer | This course is designed to familiarize participants with the basic laws governing heat in motion in a power plant. The course explains basic thermodynamic principles and shows how they apply to the efficiency of plant processes. After completing this course, participants should be able to explain the basic principles of thermodynamics and why they are important to power plant operation. They should also be familiar with temperature/entropy charts, and explain how they are used to determine and compare the efficiency of various processes in a plant cycle. | 1 | Intermediate |
| Rail Yard Operations | Receiving and unloading coal are rail yard operations that are commonly performed by coal handlers. To help coal handlers develop the knowledge and skills necessary to work safely with rail yard equipment, this course covers basic rail yard equipment, including tracks, switches, coal cars, and locomotives. It also describes how the braking system on a coal car generally operates, emphasizes the safe working practices associated with mounting and dismounting coal cars, and covers effective communication among members of a rail yard crew. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Stackers | Plants that burn coal typically store their coal in outdoor piles. To move the coal to the storage pile, a machine called a stacker is often used. An important aspect of coal handling is operating a stacker, coordinating its operation with the rest of the coal handling system, and keeping it in good working condition by performing regular inspections and minor maintenance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Steam Turbine Mechanical Drives | The steam turbine generators used today produce approximately 85% of the electricity in the United States. In a typical turbine, steam flows in at a speed near 100 miles per hour and at temperatures from 400 to 950 degrees Fahrenheit. This course describes the differences between Impulse and Reaction turbines, how steam turbines are classified, and some typical operational issues associated with steam turbines. | 0.25 | Intermediate |
| Turbine Efficiency, Part 1 | This course examines some of the conditions that can cause operating parameters to change and some of the effects of those changes. After completing this course, participants should be able to explain why it is important to operate a turbine as close to its design parameter values as possible, and describe how changes in certain parameters affect efficiency, heat rate, and fuel consumption. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Turbine Efficiency, Part 2 | This course is designed to explain how turbine efficiency and unit heat rate are affected by the use of attemperation, by the positioning of the turbine control valves, and by changes in extraction steam flows. After completing this course, participants should be able to explain why superheat and reheat attemperation cause heat rate to increase, and describe ways to prevent frictional losses in the turbine control valves. They should also be able to describe how heat rate is affected by changes in extraction steam flows. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Power Generation (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Turbine Efficiency, Part 3 | This course introduces the fundamental aspects of heat transfer and relates that information to component and plant efficiency. After completing the course, participants should be able to explain how heat transfer occurs and identify factors that affect heat transfer. They should also be able to explain how changes in operating conditions affect the factors associated with heat transfer. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Turbine Generator Basics | The steam turbine generators used today produce approximately 85% of the electricity in the United States. The primary supply of electrical energy is made in three-phase synchronous generators with power ratings up to 1,500 megawatts or more. This course discusses the basics of a turbine generator including safety, terminology, design, operation, and the functions of generator protective devices. | 0.25 | Intermediate |
| Water Treatment: Wastewater, Part 1 | Industrial facilities use large quantities of water for purposes such as cooling, generating steam, cleaning, and process operations. After the water has been used, it typically has to be treated before it can be safely discharged or recycled to be used again. This course will explain the wastewater treatment process by looking at the stages of wastewater treatment, including primary treatment, intermediate treatment, and secondary treatment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Water Treatment: Wastewater, Part 2 | This course is designed to familiarize participants with basic concepts associated with treating industrial wastewater so that it can be safely reused or discharged into the environment, how filtration and activated carbon adsorption can be used in tertiary treatment, and how final effluent quality standards affect the discharge of wastewater. It will also describe general operator responsibilities in wastewater treatment and specific operator responsibilities in activated sludge systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Water Treatment: Water for Plant Systems, Part 1 | This course is designed to familiarize participants with basic concepts associated with removing dissolved solids and gases from water, and with the safe use of chemicals in water treatment. After completing this course, participants should be able to describe ways in which dissolved solids and gases can cause problems in plant equipment. They should also be able to describe how these impurities can be removed by devices such as water softeners, demineralizers, activated carbon filters, aerators, and de-aerators. In addition, they should be able to explain how chemicals are used in water treatment and identify safety precautions associated with the use of chemicals. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Water Treatment: Water for Plant Systems, Part 2 | This course is designed to familiarize participants with basic concepts associated with removing dissolved solids and gases from water, and with the safe use of chemicals in water treatment. After completing this course, participants should be able to describe ways in which dissolved solids and gases can cause problems in plant equipment. They should also be able to describe how these impurities can be removed by devices such as water softeners, demineralizers, activated carbon filters, aerators, and de-aerators. In addition, they should be able to explain how chemicals are used in water treatment and identify safety precautions associated with the use of chemicals. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Transmission & Distribution

| Title | Description | Hours | Level |
|---|---|---|---|
| 34.5 KV Rubber Glove Work | The 34.5 KV Rubber Glove Work course is designed to introduce participants to procedures and equipment associated with performing rubber glove work on 34.5 KV lines. To obtain maximum benefit from this course, participants should have a good understanding of overhead distribution systems. At the conclusion of the course, participants should be able to describe electrical hazards associated with working on 34.5 KV distribution lines; and describe how to select, use, and care for the equipment typically required for working on 34.5 KV lines. Participants should also be able to explain how this equipment and some general safety procedures are used to perform 34.5 KV rubber glove work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Advanced Rigging - Transmission & Distribution | The Advanced Rigging course is designed to familiarize participants with the various types of weights and tensions associated with rigging in line work. The procedures and concepts presented assume a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to explain the difference between static force loads and dynamic force loads, and how to determine the weight of each type of load. Participants should also be able to explain line tension, bisect tension, and guy tension, and they should be able to determine each type of tension for a given job. In addition, participants should be able to define the term "safety factor" in terms of rigging, and they should be able to use a safety factor to plan safe rigging. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Bucket Trucks, Part 1 | The purpose of this course is to teach the major parts of a bucket truck, safety features commonly found on bucket trucks, and some of the pre-use inspections that can be made on a bucket truck. It is assumed that participants has no previous experience in operating bucket trucks. After completing the course, participants should practice operating the controls of a bucket truck under the supervision of experienced personnel. At the conclusion of this course, participants should be familiar with the major parts of bucket trucks. They should also be familiar with the basic types of bucket trucks, the boom controls, some of the common safety features and overrides, and some of the common pre-use inspections that can be performed on a bucket truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Bucket Trucks, Part 2 | The purpose of this course is to teach some basic techniques that can be used to operate a bucket truck safely and efficiently. Techniques for setting up and operating a bucket truck at three typical job sites are described. It is assumed that participants is already familiar with the basic parts of a bucket truck and understands how to use the bucket controls to operate the booms. After completing the course, participants should practice setting up and operating a bucket truck at a job site under the supervision of experienced personnel. At the conclusion of this course, participants should be able to set up and operate a bucket truck at a job site. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Fault Locating, Part 1 (Radar) | Cable Fault Locating (Radar), Part 1 is designed to familiarize participants with how a radar cable fault locator works, how to interpret the information provided by a radar cable fault locator, and how a radar cable fault locator can be used to test a section of underground residential distribution (URD) cable. To gain maximum advantage from this course, participants should have a basic understanding of URD systems and troubleshooting procedures used for URD cable faults. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to explain how a radar cable fault locator works and what the information provided by the fault locator means. They should also be able to describe how to use a radar cable fault locator to test a section of URD cable. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Fault Locating, Part 2 (Radar) | Cable Fault Locating (Radar), Part 2 is designed to familiarize participants with equipment and basic procedures for prelocating and pinpointing faults in underground cables using radar cable fault locators. At the conclusion of this course, participants should be able to explain the basic concepts of prelocating a cable fault, and should be able to describe how to prelocate a cable fault using the arc reflection method. They should also be able to describe how to pinpoint the location of a cable fault after it has been prelocated. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Splicing, Part 1 | The purpose of this course is to teach the principles of underground cable splicing and to demonstrate how cable splices are made. The course explains how to approach splicing in both primary and secondary cable. Demonstrations of splicing both types of cable are presented. At the conclusion of this course, participants should be able to explain how cable splices are made. They should know how to make a splice in either primary or secondary cable. They should also understand how heat shrink and cold shrink splices are used. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Splicing, Part 2 | The purpose of this course is to teach the principles of splicing paper-insulated lead-covered (PILC) cables. The course explains how to prepare PILC cable for several typical splices made on primary PILC cables. Demonstrations of making several typical splices on PILC cables are presented. At the conclusion of this course, participants should be able to explain how several typical splices on PILC cables are made. They should know how to make a straight splice, a typical transitional splice, and one type of trifurcating transitional splice on a PILC cable. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Terminations | The purpose of this course is to teach the principles of high-voltage cable terminations and to demonstrate how such cable terminations are made. The course explains the problems associated with voltage stress and the function of stress cones. Demonstrations of how to make several different kinds of cable terminations are presented. At the conclusion of this course, participants should be able to explain what voltage stress is and how terminations are built to avoid voltage stress problems. They should understand how to make a high-voltage termination in a substation. They should also know how to make terminations at pedestals and how to install a pothead. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Care and Testing of Tools and Equipment | The purpose of this course is to teach care, inspection, and testing of tools and equipment commonly used in transmission and distribution maintenance work. Basic information is also provided on two particular types of tests: dielectric tests and acoustic emission tests. At the conclusion of this course, participants should be able to define the objectives of dielectric and acoustic emission tests and to explain, in general terms, how these tests are performed. Participants should be able to describe and demonstrate how to inspect protective equipment such as rubber gloves, sleeves, blankets, line hose, hoods, mechanical jumpers, bucket trucks, and hot sticks. They should also understand how to care for this equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Transmission & Distribution (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Climbing Steel Poles and Towers | The purpose of this course is to teach the basic principles of safe climbing on steel poles and towers. Participants are also introduced to some of the common techniques for getting into position to do a job on a steel pole or tower. At the conclusion of this course, participants should be able to list and describe common climbing-related hazards encountered by linemen. They should be able to identify basic climbing equipment and demonstrate how it is used when climbing steel poles and towers. They should also be able to demonstrate and explain basic techniques for positioning in order to perform specific tasks. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Climbing Wooden Poles | The purpose of this course is to teach the use of basic climbing equipment, the basic techniques of free and belted climbing, and the care and maintenance of climbing equipment. Participants are also introduced to some basic climbing situations typically encountered by new climbers on a job. At the conclusion of this course, participants should have a basic understanding of the equipment used for climbing wooden poles, how to determine the proper fit of equipment, how equipment is cared for and maintained, and how equipment is tested and inspected. Participants should also understand the basic techniques of free and belted climbing and how to maneuver around a pole. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Compressors and Pneumatic Tools | The purpose of this course is to teach the basic operating principles and general operating procedures for air compressors and the following pneumatic tools: jackhammers, tamps, pumps, circular air saws, and duct blowing rigs. The course shows how to use the tools efficiently for several construction and maintenance jobs. Emphasis is placed on the important safety precautions associated with using these tools. At the conclusion of this course, participants should have a basic understanding of how to operate an air compressor. They should also know how to use pneumatic tools safely and efficiently on a job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Distribution | The purpose of this course is to teach transmission and distribution (T&D) personnel to recognize the basic elements in a distribution system and to understand, in general, how each element works. The course also introduces basic protective devices and the process of sectionalizing. At the conclusion of this course, participants should know how to recognize transformers, voltage regulators, and capacitors. They should also have a basic understanding of how these devices work. Participants should also be able to identify basic protective devices used on distribution systems to protect the system and its components from damage and its customers from outages. And participants should have a basic understanding of how distribution systems are laid out. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Distribution Line Repair - Gloves | The purpose of this course is to teach the principles involved in working on energized lines using insulated gloves. These principles are illustrated by a demonstration of replacing dead-end crossarms with the lines energized. Method, communication, concentration, and safety are emphasized throughout the course. At the conclusion of this course, participants should be able to demonstrate how to work safely on energized lines using insulated gloves. They should be able to demonstrate how to prepare for a job that will be done using gloves, perform the work safely, and return the job site to a normal condition. They should also understand the steps required to perform the specific job demonstrated. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Distribution Line Repair - Hot Sticks | The purpose of this course is to teach the principles involved in working on energized lines using hot sticks. The principles are illustrated by a demonstration of replacement of dead-end crossarms with the lines energized. The same job is used as with gloves in order to show more clearly how using hot sticks differs from using gloves. Method, communication, concentration, and safety are emphasized throughout the course. At the conclusion of this course, participants should be able to demonstrate how to work safely on energized lines using hot sticks. They should be able to demonstrate how to prepare for a job that will be done using hot sticks, perform the work safely, and return the job site to a normal condition. They should also understand the steps required to perform the specific job demonstrated. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Distribution Line Safety | The Distribution Line Safety course is designed primarily to introduce participants to principles and techniques of equipotential grounding. Although the course is intended as an introduction to equipotential grounding, the procedures and concepts presented assume a familiarity with basic electrical theory, distribution systems, grounding theory and application, and basic distribution line work methods and procedures. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to explain the purpose of grounding an overhead line during maintenance work and describe ways in which an isolated or de-energized line can become energized. Participants should also be able to define the term "zone of equipotential" and explain how equipotential grounding operates to safeguard linemen in the event of a ground fault condition. Finally, participants should be able to describe or demonstrate how grounding equipment can be used to set up a zone of equipotential. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| High Voltage AC Power, Part 1 | The purpose of this course is to introduce transmission and distribution (T&D) personnel to some of the factors that influence transmission efficiency and power loss. The course explains how T&D systems are designed to minimize power loss and how resistance, capacitive reactance, and inductive reactance can be manipulated to help maintain minimum levels of power loss. At the conclusion of this course, participants should know what power loss is and how power loss is affected by impedance. They should understand that impedance comes from resistance, capacitive reactance, and inductive reactance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| High Voltage AC Power, Part 2 | The purpose of this course is to teach participants basic alternating current (AC) power theory. The course focuses on the relationships between various types of power and on the functions of transformers, voltage regulators, and capacitors in a distribution system. At the conclusion of this course, participants should be able to define apparent power, true power, reactive power, and power factor and explain the meaning of each term in the context of three-phase AC distribution systems. They should also be able to describe how delta and wye configurations affect voltage and current and how voltage regulators and capacitors are used to affect the power factor in a three-phase distribution system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Transmission & Distribution (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hydraulic Derricks | The purpose of this course is to familiarize participants with three types of hydraulic digging equipment: digger derricks, backhoes, and trenchers. The major working parts and controls and safe operating practices for each are described. Each piece of equipment is shown safely performing a job typical of those for which it is designed. After completing this course, participants should be able to locate and identify the major working parts and controls of digger derricks, backhoes, and trenchers. They should also be able to summarize the uses for which each machine has been designed and describe each machine's safe operation in the field. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hydraulic Hand Tools, Part 1 | The purpose of this course is to teach the basic principles of operation of three commonly used types of hydraulic hand tools: breakers, pole pullers, and tamps. The course also presents some of the basic principles of hydraulics and shows how these principles apply to the operation of a hydraulic power system. At the conclusion of this course, participants should have a basic understanding of how hydraulic breakers, pole pullers, and tamps operate. They should be able to identify the basic external and internal parts of the tools and explain their functions. They should also know the safety precautions that are applicable to using hydraulic hand tools on a job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hydraulic Hand Tools, Part 2 | The purpose of this course is to teach the basic principles of operation of three types of hydraulic hand tools: chain saws, impact wrenches, and presses. In addition to showing how these tools work, the course explains how to use them to perform some of the tasks commonly assigned to transmission and distribution linemen. At the conclusion of this course, participants should have a basic understanding of how hydraulic chain saws, impact wrenches, and presses operate. They should also know how to use and maintain each type of tool safely and efficiently. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Introduction to Smart Grid | This course will describe what the smart grid is and why it was developed. It will also describe advanced sensing and measurement techniques and control strategies that are used within smart grid systems. Finally, the course will provide an overview of advanced technologies developed for smart grid systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Material Handling Bucket Trucks | The purpose of this course is to teach the operation of material handling bucket trucks. The course focuses on the material handling features of the truck that distinguish it from other types of bucket trucks. It covers truck positioning, lift capacity, and some of the conductor lifting attachments that can be used to make a material handling bucket truck even more useful in the field. To gain maximum advantage from this course, participants should already be familiar with basic bucket trucks. At the conclusion of this course, participants should be able to identify the material handling features of a material handling bucket truck, including the winch, the jib, and conductor lifting attachments. They should also be able to explain lift capacity and demonstrate how to use a material handling bucket truck to lift equipment or conductors. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Mobile Hydraulic Systems | The purpose of this course is to teach basic operation and maintenance of mobile hydraulic systems used on line trucks. The course presents the basic principles of hydraulic power and explains how these principles are used to produce motion. Inspection and routine maintenance of mobile hydraulic systems are also discussed. At the conclusion of this course, participants should have a basic understanding of how mobile hydraulic systems operate. They should be able to identify components of a mobile hydraulic system and explain how they function. They should also be able to inspect a mobile hydraulic system and perform minor maintenance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Multiple Street Lighting Systems | The purpose of this course is to teach the basic principles of operation and maintenance of a multiple street lighting system. The course presents the fundamental theory of operation and identifies the equipment typically found in a multiple street lighting system. Approaches to detecting and correcting common problems are also shown. At the conclusion of this course, participants should have a basic understanding of how multiple street lighting systems work, what equipment they use, and how they are controlled. Participants should be able to detect and correct common problems in a multiple street lighting system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Overhead Troubleshooting, Part 1 | Overhead Troubleshooting, Part 1 is designed to introduce participants to some basic troubleshooting steps that can be applied to any type of overhead electrical system problem and to demonstrate how those steps can be applied to several different troubleshooting situations. Although Overhead Troubleshooting. Course, Part 1 is an introductory course; it is recommended that participants have a general understanding of overhead system components and operation. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to identify some basic troubleshooting steps that can be applied to any type of overhead system problem; identify other considerations that should be kept in mind during any kind of troubleshooting activity; and describe how some basic troubleshooting steps can be applied to several different troubleshooting situations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Overhead Troubleshooting, Part 2 - Emergency Conditions | Overhead Troubleshooting, Part 2 is designed to familiarize participants with some of the basic principles associated with troubleshooting overhead electrical systems during emergency conditions. Particular attention is paid to the differences between troubleshooting during emergency conditions and troubleshooting during normal conditions, and to the manner in which communications are handled. T o gain maximum advantage from this course, participants should have a basic understanding of the components and operation of an overhead electrical system, and they should have completed the Overhead Troubleshooting, Part 1 course. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to identify basic differences between troubleshooting under emergency conditions and troubleshooting under normal conditions, and describe basic preparations and safety precautions associated with troubleshooting under emergency conditions. They should also be able to explain why a communications center is needed during emergency conditions and how communications to and from the communications center are handled. The participants should also be able to describe how repairs to problems encountered during troubleshooting are prioritized during emergency situations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Transmission & Distribution (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pad-Mounted Transformers and Switchgear | The purpose of this course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pole Framing and Guying | The purpose of this course is to teach several approaches to framing and guying utility poles. Several types of construction that are in common use are presented. Several approaches to framing poles are demonstrated: single crossarm, multiple crossarm, armless, and vertical construction. Techniques for positioning and installing guy wires are also explained. At the conclusion of this course, participants should be able to describe several types of construction. They should be able to install crossarms and insulators on utility poles. They should also be able to explain the considerations involved in selecting and positioning guys and anchors and to demonstrate how to install a guy wire. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pole Top Equipment & Replacement, Part 1 | The Pole Top Equipment and Replacement course is designed to familiarize participants with the various types of pole top equipment and switches used in overhead distribution systems. Pole top equipment operation and function are discussed along with general procedures for equipment replacement and maintenance. To obtain maximum advantage from this course, participants should be familiar with the Transmission and Distribution (T&D) Systems and Theory courses and the T&D Maintenance Basics courses or have equivalent background. At the conclusion of this course, participants should be able to describe how pole top cutouts, reclosers, sectionalizers, and gang-operated switches are used to provide coordinated protection for a distribution system. They should also be able to identify problems that occur in pole top equipment, and they should be able to describe general procedures for replacing fused cutouts, reclosers, and gang-operated switches. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pole Top Equipment & Replacement, Part 2 | The purpose of this course is to teach how overhead capacitors and voltage regulators work, how to detect problems in their operation, and how to safely replace them if necessary. To accomplish this, the course presents the basic theory and operating characteristics of overhead capacitors and voltage regulators and demonstrates how they can be safely replaced. At the conclusion of this course, participants should be able to describe the function and operation of overhead capacitors, how to detect operating problems, and how to replace an overhead capacitor safely. They should also be able to describe the function and operation of overhead voltage regulators, how to detect voltage regulator problems, and how to safely replace an overhead voltage regulator. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pole Top Transformer Replacement | The purpose of this course is to teach the basic procedures used to safely remove and install pole top transformers. Although specific types of transformers are used as examples, emphasis is placed on general procedures that apply to the majority of pole top transformers. At the conclusion of this course, participants should understand the basic procedures for replacing pole top transformers safely and efficiently. Their understanding should include how to use a boom or blocks and a truck-mounted winch to install or remove a transformer and the basic techniques used to connect and disconnect pole top transformers. They should also be familiar with some methods commonly used to replace a transformer without interrupting customer service, and they should know how to use the appropriate safety equipment for transformer replacement procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging for High Voltage Line Work | The purpose of this course is to teach the basic principles of rigging for high-voltage work and to demonstrate how these principles apply in three typical rigging jobs. Particular emphasis is placed on basic safety issues and on properly planning a rigging job. At the conclusion of this course, participants should be able to explain how to approach rigging near energized lines. They should understand how to plan a job and how the amount of strain involved affects the size and type of equipment selected. They should also be able to describe how to rig to remove strain from a transmission insulator. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging, Part 1 | The purpose of this course is to teach the fundamentals of overhead rigging. The topics covered include three basic elements of safe rigging, rope, knots and knot tying, use of a handline, and use of block and tackle. The course also introduces approaches to performing some basic rigging tasks. At the conclusion of this course, participants should have a basic understanding of how to plan a rigging job, how to inspect the equipment used on a job, how to tie basic knots commonly used in rigging, how to hang and use a handline, and how to hang and use a block and tackle. Participants should also be able to calculate the mechanical advantage of a block and tackle and identify the basic parts of a rope. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging, Part 2 | The purpose of this course is to teach rigging skills required for tasks often performed in line work. The course demonstrates how to rig to lift a conductor and how to rig to take the strain from a conductor at a dead end. Rigging to lift and move a piece of equipment and the use of a gin pole are also demonstrated. Safety is emphasized throughout the course. At the conclusion of this course, participants should have a basic understanding of how to rig to lift a conductor, how to rig to take strain at a dead end, how to lift and move a load, and how to use a gin pole. They should understand how to maintain safe working clearances around energized lines and how to avoid overloading rigging equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Safe Bucket Truck Operations | This course covers aspects of bucket truck safety such as how to avoid accidents, how to lower the boom in an emergency, and how to carry out a bucket truck rescue. It is assumed that participants are already familiar with the basic parts and operation of a bucket truck. Participants should be familiar with all applicable safety procedures before they operate a bucket truck. The instructor should make sure that all participants wear hard hats, safety glasses, and gloves. After completing this course, participants should be able to explain how to perform a preuse inspection of a bucket truck, describe safety considerations associated with using a bucket truck at a job site, and explain how personnel can be protected from bucket truck shock hazards. They should also be able to describe common methods of bucket truck escape, emergency boom lowering, and bucket truck rescue. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Transmission & Distribution (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Safety in Overhead Line Maintenance | The purpose of this course is to teach basic safety principles and practices applicable to work on overhead lines. The principles stressed are proper attitude, preplanning, care and inspection of equipment, and creation of a safe work area. At the conclusion of this course, participants should be able to recognize the electrical and structural hazards associated with overhead line maintenance and know what to do to avoid them. They should know how to identify, care for, inspect, and use the protective equipment necessary for working near energized lines and equipment. They should also know the correct procedures for working aloft, and they should understand how to perform a fast and safe pole top rescue. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Safety in Substations and Switchyards | The purpose of this course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Safety in Transmission and Distribution Maintenance | The purpose of this course is to teach the basic safety considerations involved in performing maintenance work on transmission and distribution (T&D) systems. Specific electrical shock hazards and how to avoid them are discussed. The course describes hazards that may be encountered in overhead, underground, and substation and switchyard maintenance work. At the conclusion of this course, participants should have a basic understanding of the types of hazards that may be encountered in T&D maintenance work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Safety in Underground Line Maintenance | The purpose of this course is to teach the basic safety principles and practices applicable to underground line maintenance work. The principles covered are applicable to work area safety, to the use of test equipment to ensure respiratory and electrical safety, to ensure the structural integrity of underground work sites, to the use of respirators, and to emergency responses. At the conclusion of this course, participants should be able to identify some of the hazards found in and around underground work areas. They should be able to recognize and explain methods used to provide a safe work environment. They should also be able to describe the use of personal safety equipment and identify the safety considerations involved in a typical vault emergency. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Series and Street Lighting | Series and Street Lighting is designed to familiarize participants with electrical street lighting systems that use series alternating current (AC) circuits. The components and operation of series street lighting circuits are discussed, as well as how to identify some common street lighting circuit faults. To obtain maximum advantage from this course, participants should have an understanding of basic electrical theory and the components and operation of distribution systems. They should also be familiar with circuit and wiring diagrams. At the conclusion of this course, participants should be able to describe the design and operation of series street lighting circuits and the components that make up a series street lighting system. They should also be able to describe basic troubleshooting procedures for determining the cause of a fault in a series street lighting circuit. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Setting and Replacing Poles | The purpose of this course is to teach how to set a pole and two methods of manual replacement of an existing pole. The most common method of setting poles using power equipment is demonstrated first. Because power equipment may not always be available or may not be able to reach the job site, two manual methods of replacing poles are demonstrated. At the conclusion of this course, participants should be able to describe and demonstrate how to set a pole using a derrick. They should be able to describe and demonstrate how to set a pole in a hole adjacent to an existing pole by rigging off of the existing pole. They should also be able to describe and demonstrate how to replace a pole with a new pole in the same hole. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Temporary Structures | The purpose of this course is to describe why and how temporary structures may be used to support transmission lines. Circumstances that could lead to a need for temporary structures are presented, and positioning, assembly, and guying of a temporary structure are demonstrated. How to transfer lines to a temporary structure is also explained. At the conclusion of this course, participants should understand why temporary structures are sometimes used. They should understand how to position, assemble, and guy a temporary structure. They should also be able to explain how to safely transfer transmission lines to a temporary structure. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transformer Connections, Part 1 | The purpose of this course is to teach the common types of overhead transformers and how they are connected. Both single-phase and three-phase connections are covered, but the emphasis is on three-phase connections. The course presents connection theory and demonstrates how connections are made. At the conclusion of this course, participants should be able to describe and demonstrate how to make single-phase transformer connections. They should be able to describe and demonstrate how to make three-phase connections in the wye-wye and delta-delta configurations. They should also be able to verify that a replacement transformer is the right one. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transformer Connections, Part 2 | The purpose of this course is to teach how common types of overhead transformers can be connected together. Both single-phase and three-phase transformers are covered, but the emphasis is on three-phase connections of three single-phase transformers. The course presents connection theory using phasor diagrams and demonstrates how each of the connections is made. At the conclusion of this course, participants should be able to describe and demonstrate how to make three-phase connections in all of the following configurations: delta-wye, wye-delta, alternative delta-delta, and alternative wye-delta. Participants should also be able to show these connections using phasor diagrams. They should be able to demonstrate how to connect transformers to form an open bank in the configurations of delta-delta and wye-delta. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transformer Troubleshooting | The purpose of this course is to teach techniques for troubleshooting single-phase transformers and three-phase transformer banks. The course demonstrates how to identify a faulted transformer. It also demonstrates how to isolate transformers and how to test for proper no-load voltage. At the conclusion of this course, participants should be able to identify a faulted single-phase transformer, isolate it, and test it for proper no-load voltage. They should also be able to identify a faulted transformer in a three-phase transformer bank, isolate the faulted transformer, and test it for proper no-load voltage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Transmission & Distribution (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Transmission | The purpose of this course is to teach participants the purpose and function of the components that make up the transmission portion of a transmission and distribution (T&D) system. These components include conductors, insulators, and structures. The course also gives a basic overview of the major tasks that must be accomplished when a transmission line is constructed and discusses the principal concerns of a lineman during transmission line inspection. At the conclusion of this course, participants should be able to list and describe the major components in a transmission line and explain their functions. They should also be able to describe the basic tasks involved in constructing and inspecting a transmission line. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transmission and Distribution: Distribution Line Installation and Removal | "Sometimes changes are made in the area around a distribution line that make it necessary to relocate or replace a portion of that line. This interactive online course will familiarize you with the general procedures involved in completing a typical distribution line installation and removal.<br>You will learn how to plane an installation and removal job and how to perform the major steps involved in doing the job. You will also learn how to pull and sag lines, parallel a new line with an existing line, remove conductors, and remove equipment. " | 1 | Intermediate |
| Transmission and Distribution: Distribution Line Replacement | The purpose of this course is to teach how to replace conductors in an existing line with new conductors. The situation described is one that often occurs when it is necessary to increase the size of the conductors in a line. This interactive online course demonstrates how to install the new conductors, parallel them with the existing conductors, and remove the old conductors. The importance of maintaining the proper clearances and the importance of maintaining the integrity of the existing line are explained. Safety is emphasized throughout the course. At the conclusion of this course, participants should be able to plan a replacement job and demonstrate how to perform the major steps involved in doing the job. They should be able to install temporary crossarms, transfer lines, pull and sag new lines, parallel a new line with an existing line, and remove old conductors. | 1 | Intermediate |
| Transmission and Distribution: Focus on Distribution | "The transmission part of a transmission and distribution system supplies electricity to substations and individual service areas. While the job of the distribution part of a T&D system is to take this electricity and supply it to individual consumers at a voltage they can use; doing this job properly requires the use of a variety of electrical devices and an intricate system of distribution lines. This interactive online course will teach you about the components that make up a typical distribution system. You will learn how to recognize individual components and gain a basic understanding of the jobs they perform." | 1 | Intermediate |
| Transmission and Distribution: Framing Specifications and Basic Construction Diagrams | The purpose of this course is to teach participants the kinds of information that can be obtained by reading electrical system diagrams and to illustrate how this information can be used to assist lineworkers who work on electrical systems. Practical examples of how to get information are given throughout the course. At the conclusion of this course, participants should know what kind of information is typically found on construction diagrams, on schematic diagrams, and in specification manuals. They should know how to use all of these references to determine the information necessary to do a job. | 1 | Intermediate |
| Transmission and Distribution: Introduction to Transmission and Distribution Systems | The purpose of this interactive online course is to teach participants how transmission and distribution (T&D) systems generally deliver to customers the power produced by power plants. The course describes how the major components of a T&D system function and how electricity flows through these components on its journey from the power plant to customers. At the conclusion of this course, participants should have a basic understanding of how transmission and distribution systems operate. They should be able to identify the basic components of a transmission and distribution system and explain their functions. They should also be able to describe the flow path from a power plant, through a typical T&D system, to the customer. | 1 | Intermediate |
| Transmission and Distribution: Overhead Distribution Systems | The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed. | 1 | Intermediate |
| Transmission and Distribution: Pad-Mounted Transformers and Switchgear | The purpose of this interactive online course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer. | 1 | Intermediate |
| Transmission and Distribution: Power Quality | This interactive online course is designed to familiarize participants with the issues and problems associated with maintaining power quality. To obtain maximum benefit from this course, participants should have a general understanding of the basic concepts of electric power generation, transmission, and distribution. At the conclusion of this course, participants should be able to explain the basic concepts of power quality, identify sources and causes of power quality problems, and describe the effects of power quality problems on residential and commercial customers. They should also be able to identify equipment and methods for preventing and monitoring power quality problems. | 0.75 | Intermediate |
| Transmission and Distribution: Service Installation | "Each service installation job you do will be different because of different site conditions, but the basic installation skills and practices you will learn in this course can be applied no matter what type of service installation job you're doing. This interactive online course will teach you how to install and connect services. You will learn about the different types of connectors available and how service conductors are joined together using some of those connectors. You will also learn how to install single phase, overhead, and underground residential service. Additionally, you will learn how to install three-phase service, and how to replace an existing three-phase service without affecting the customer." | 1 | Intermediate |
| Transmission and Distribution: Substations and Switchyards | "Electricity affects almost everything we do. Sometimes its impact is so subtle, we don't even realize it's there. Just about everybody depends on it and expects it to be available when it's needed. From the businesses that use electricity to process information to suburban homeowners who rely on electricity for the basic conveniences we've grown accustomed to, to the rural dairy farmer who relies on electricity to operate much of his machinery, our entire country is interlaced with transmission and distribution systems that get electricity to where it's needed when it's needed. The purpose of this interactive online course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents." | 1 | Intermediate |

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# Transmission & Distribution (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Transmission and Distribution: Transmission Line Installation | The purpose of this interactive online course is to describe and demonstrate an approach to installing a transmission line. This work is not a routine part of a lineworkers's job in many locations, but an understanding of the basic approach is useful to individuals who are responsible for maintaining lines. At the conclusion of this course, participants should understand how to plan and set up an installation job, the purpose of guard structures, and how to set them up. They should also know how to pull conductors into place to properly sag and how to clip them permanently to the insulators. | 1 | Intermediate |
| Transmission and Distribution: Transmission Line Safety | This course is designed to cover three major areas relating to safety in transmission line work: personal safety, electrical safety, and work site safety. Specific attention is directed to proper clothing and protective equipment; hazards associated with slipping, tripping and falling, and lifting and moving loads; electrical hazards and steps that can be taken to safeguard against them; and how personnel can work safely at the job site, both on the ground and while climbing transmission structures. This interactive online course assumed a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction. | 1 | Intermediate |
| Transmission and Distribution: Underground Residential Distribution Systems | "Recent developments in technology, such as the development of cable and equipment that can be directly buried in the ground have made underground installation of electrical service to residential areas easier than ever. Today, many residential subdivisions have all their utilities installed underground, giving a cleaner, more picturesque look to the neighborhood. This interactive online course is about underground residential distribution systems, also known as URD systems. URD systems are local distribution systems designed primarily to be buried in the ground and serve residential customers. The purpose of this course is to give you a basic understanding of the common types of URD systems, as well as some of the various components that may be used in a URD system. We'll also be looking at some of the ways a URD system can be inspected. Finally, we'll see a demonstration of how a URD system has been set up to allow work to be done on it safely and efficiently." | 1 | Intermediate |
| Transmission and Distribution: Using Line Test Equipment | The purpose of this course is to introduce types of line test equipment used in the field to detect voltage, amperage, and resistance; to show how this equipment is used; and to show the kinds of readings that can be expected from this equipment. After completing this course, participants should be able to identify types of line test equipment used in the field. They should have a basic understanding of the use of this equipment; they should know how to determine which instrument to use; and they should be able to demonstrate the use of each meter to take a reading. | 1 | Intermediate |
| Transmission and Distribution: Using Various Types of Electrical Diagrams and Geospatial Information Systems | Did you know different types of electrical system diagrams are used to show large portions of an electrical system down to a single structure or even a portion of a structure? The purpose of this course is to teach the basic kinds of information that can be obtained from various types of electrical system diagrams: one-line diagrams, plan-profile diagrams, framing diagrams, and GIS technology. The course shows how these diagrams are read and interpreted and how information can be used to complete an assignment. This interactive online course will show participants what information is typically found on one-line, plan profile, framing diagrams, and GIS applications. They should also be able to interpret diagrams to determine the location of a job site and then plan the best route to the site. In addition, participants should be able to use a framing diagram to determine what materials should be present at a work site and in what quantities. | 1 | Intermediate |
| Transmission and Distribution: Working on Distribution Poles | "The purpose of this course is to teach the basic principles involved in working safely on distribution. To illustrate these principles, you will be shown some resources available for planning distribution work. This interactive online course will teach you general considerations associated with planning a distribution job. You will also learn how a variety of tools and equipment can be used, including an auxiliary arm. Additionally, you will learn how to replace secondary conductors, move energized conductors, and how to install floating dead-ends. " | 1 | Intermediate |
| Transmission Line Repair - Bare Hand Method | The purpose of this course is to teach the theory and practice involved in using the bare hand method to perform live transmission line repair. Safety is emphasized throughout the course. The basic theory of bare hand work is presented as well as the equipment used to perform this work. Installation of a repair sleeve is used as an example to illustrate how the principles of bare hand work are applied. At the conclusion of this course, participants should be able to explain what bare hand repair work is, why it works, and how it is done. They should also be able to explain how to install a repair sleeve using the bare hand method. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transmission Line Repair - Hot Sticks | The purpose of this course is to teach the theory and practice involved in safe use of hot sticks to perform live transmission line repair. Basic safety issues and basic techniques for the care, selection, and use of hot sticks are presented. The course builds on a basic understanding of how to work on transmission towers and the use of high-voltage rigging techniques to demonstrate replacement of string insulators using hot sticks. At the conclusion of this course, participants should be able to describe the safety issues important in performing live transmission line repair using hot sticks. They should be able to care for, select, and use hot sticks. They should also be able to explain how to replace string insulators in all three common positions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transmission Structures | The purpose of this course is to teach how transmission structures are built. It is recognized that transmission structure construction is not a routine part of a lineman's job in most locations; however, a basic understanding of how this work is done is useful for maintaining transmission lines. The course describes how transmission structure foundations are laid and covers three types of construction methods for erecting transmission structures. At the conclusion of this course, participants should be able to describe how two types of transmission structure foundations are laid. They should also be able to explain how transmission structure construction is planned and describe three ways that transmission structures are erected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Tree Trimming, Part 1 | Tree Trimming, Part 1 is designed to familiarize participants with the basic tasks, equipment, and safety hazards associated with trimming trees near energized power lines and equipment. At the conclusion of this course, participants should be able to identify safety hazards associated with tree trimming work and describe ways to avoid them. They should also be able to identify and describe the use of safety equipment, manual tools, and power tools that are commonly used for tree trimming work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Tree Trimming, Part 2 | Tree Trimming, Part 2 is designed to familiarize participants with procedures and equipment typically associated with emergency line clearance work. Emphasis is placed on the safety aspects of the job. It is assumed that participants have completed Tree Trimming, Part 1 or have equivalent background knowledge. At the conclusion of this course, participants should be able to describe various aspects of emergency tree trimming work, including how to plan and perform a job safely. They should also be able to identify some of the tree cuts that are used for clearing trees and tree limbs from power lines. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Transmission & Distribution (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Troubleshooting Overhead Lines | The purpose of this course is to teach how to go about patrolling overhead lines. The importance of patrolling to reliable operation of the lines is discussed, and examples of structure, hardware, conductor, insulator, and obstruction problems are shown and explained. An example of how to detect problems while patrolling an overhead line is also given. At the conclusion of this course, participants should be able to explain why patrolling overhead lines is important. They should understand the types of problems to look for when patrolling overhead lines. They should be able to detect structure problems, problems with broken or damaged hardware on a pole or tower, problems with conductors and insulators, and current or developing obstructions of the lines. They should also be able to demonstrate the ability to detect problems when patrolling overhead lines. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Underground Cable Installation | The purpose of this course is to teach two methods of underground cable installation: direct burying and installation in conduit. The course demonstrates how to install and connect a direct-buried cable. A demonstration of how to install cable in underground conduit is also presented. At the conclusion of this course, participants should be able to install and connect a direct-buried cable. They should also be able to install PVC conduit underground and pull cable into it. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Underground Conduit | The purpose of this course is to teach how to pull cable in manholes and how oil-filled metal conduit is monitored and maintained. The course describes typical cable-pulling equipment and demonstrates how it is used to pull cable in manholes. Oil-filled metal conduit is described, and the principles of corrosion monitoring are explained. An approach to repair of a leaking oil-filled metal conduit is also presented. At the conclusion of this course, participants should be able to describe and demonstrate how cable-pulling equipment is used to pull cable in manholes. They should also understand the purpose of oil-filled metal conduit, and they should be able to explain how corrosion-monitoring equipment works and how to repair leaking oil-filled metal conduit. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| URD Transformers | The purpose of this course is to teach the basic principles involved in detecting a transformer problem and to illustrate disconnecting, replacing, and reconnecting a faulted subsurface transformer. Basic troubleshooting techniques are presented using an example in which a subsurface residential transformer has caused a power outage. Techniques for energizing and de-energizing are illustrated. At the conclusion of this course, participants should be able to explain how to use the process of elimination to determine the cause of a residential power outage. They should be able to apply this process to locate the cause of a residential power outage. They should also know how to use diagrams to locate circuits, transformers, and houses, and know how to plan a logical search for the cause of an outage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Working on De-energized Transmission Lines | The purpose of this course is to teach principles and practices for working safely on de-energized transmission lines. The course explains how a de-energized line could become energized if the proper safety practices are not followed. An approach to de-energizing, isolating, testing, and grounding a transmission line is presented. At the conclusion of this course, participants should be able to describe the dangers of a de-energized line's becoming energized. They should be able to describe how to safely de-energize, isolate, test, and ground a transmission line. They should also be able to describe or demonstrate how to use temporary grounds and personal grounds. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Electronics

| Title | Description | Hours | Level |
|---|---|---|---|
| Basic Electronics, Part 1 | In the study of electronics, knowledge of fundamental electrical relationships provides the foundation for developing advanced concepts and skills. This course covers the basic electrical quantities of current, voltage, resistance, and inductance that are universal to all circuits. An understanding of how electronic circuits work, and how they can be manipulated and repaired, depends on familiarity with these basic quantities and the relationships between them. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Electronics, Part 2 | In the study of electronics, knowledge of fundamental electrical relationships provides the foundation for developing advanced concepts and skills. This course covers the basic electrical quantities of current, voltage, and capacitance that are universal to all circuits. An understanding of how electronic circuits work, as well as how they can be manipulated and repaired, depends on familiarity with these basic quantities and the relationships between them. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boolean Algebra, Part 1 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Boolean Algebra, Part 2 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Boolean Algebra, Part 3 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Digital Logic | Because nearly all computers and digital devices use digital logic, it is important that technicians who work on this equipment be familiar with its concepts and principles. This course focuses on the basic principles of digital logic and of logic gates. The technician who understands these principles and operations have a much easier time troubleshooting digital equipment. Being able to understand the computer's logical operations is the key to successful troubleshooting. | 1 | Intermediate |
| Diodes and Semiconductor Basics | A diode is simply the main building block of semiconductors. It's a small electronic device that limits current flow to one direction. This course covers types of diodes, how to identify diodes, transistor construction, types of transistors, and atomic theory of semiconductors. | 0.5 | Intermediate |
| Electrical Soldering | "Soldering is a technique for joining two pieces of metal together by melting and flowing a filler metal into the area where the pieces are to be joined. The filler metal, or solder, is an alloy that melts at a lower temperature than the pieces being joined. Soldering is commonly used in electronics, plumbing, certain types of metalwork, and jewelry. This module will focus primarily on soldering as applied to electronics, including the composition of different solders, the role of flux, joint preparation and proper soldering technique." | 0.5 | Intermediate |
| Electronic Circuit Board Repair | Today, almost all electronic devices have components placed on printed circuit boards. These boards are called printed circuit boards, or PCBs, because the conductive paths are printed on through a photographic process. Circuit boards are essential to the day-to-day operation of most electronic products. This course will describe how to identify defective circuit boards, as well as two common methods of troubleshooting. | 1 | Intermediate |
| Filter Circuits | In this course, participants will learn to describe the purpose of a filter circuit as well as how to identify the major components of a filter circuit. This course also covers some of the common types of filter circuits and how filter circuits are used on power conditioning systems. | 1 | Intermediate |
| Oregon Electrician 2020 NEC Changes: 2 Hour Program #1 | This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units. | 2 | Intermediate |
| Oregon Electrician 2020 NEC Changes: 2 Hour Program #2 | This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 2 | Intermediate |

| Electronics (Continued) | | | |
|---|---|---|---|
| **Title** | **Description** | **Hours** | **Level** |
| **Oregon Electrician 2020 NEC Changes: 2 Hour Program #3** | This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 2 | Intermediate |
| **Power Supplies** | An electronic power supply is a device, or a group of devices, that converts normal generated alternating current (AC) power into power that is suitable for electronic equipment. An electronic power supply typically includes some or all of the following types of devices: transformers, rectifiers, filters, regulators, voltage multipliers, and voltage dividers. The components of a specific power supply are directly related to the requirements of the electronic equipment being served. | 1 | Intermediate |
| **Radio Operation, Hardware, Telephone Systems, and Electromagnetic Waves** | A radio communications system can be broken down into two parts: the transmitter and the receiver. This course will discuss the radio circuit layout, radio waves, and other radio components. | 0.5 | Intermediate |
| **Troubleshooting Power Supplies** | Rectifiers are essential for the operation of everyday electronics. However, problems with these rectifiers can arise, and it is just as essential to give these problems immediate attention. This course will serve as a brief discussion on how to troubleshoot both half-wave and full-wave rectifiers. | 1 | Intermediate |

VectorSolutions™

# Health, Safety & Environment Premium

| Title | Description | Hours | Level |
|---|---|---|---|
| Rigging: Basic Lifting | This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability. | 2 | Intermediate |
| Rigging: Ladders and Scaffolds | This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds. | 2 | Intermediate |
| Material Handling: Tank Trucks | This course is designed to familiarize participants with basic concepts of material handling using tank trucks. After completing this course, participants should be able to describe characteristics of liquids that can affect liquid handling operations, and they should be able to describe precautions, procedures, and equipment associated with handling hazardous liquids. They should also be able to describe features of a typical tank truck and typical procedures for loading and unloading a tank truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Laboratory Safety (BBLASA0CEN) | This course looks at the hazards that are found within the laboratory and some ways to protect lab workers from those hazards. Also included is an overview of the OSHA Lab Standard, the elements of a Chemical Hygiene Plan, and some of the basic rules of good chemical hygiene. Chemical storage requirements and some general procedures to follow in case of an emergency are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Warning Signs and Labels (BBWSAL0CEN) | This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Personal Safety for Lab Technicians | This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| The Safe Lab Environment | This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Emission Controls | One of the critical concerns of industries that deal with hazardous chemicals is the release or discharge of these substances into the air. This course identifies different types of emissions and their effects on the environment and describes methods that can be used to prevent or control emissions. | 1 | Intermediate |
| OSHA Safety: Drilling | The oil and gas industry employs hundreds of thousands of people and is a vital component of the national economy. Worker safety and health are important to this industry and it is essential to be aware of potential hazards present in the workplace. This 4-hour interactive online course discusses OSHA standards and directives that dictate OSHA safety procedures for oil and gas well drilling. This course also identifies common hazards and possible solutions to reduce incidents that could lead to injuries or fatalities. | 4 | Fundamental |
| OSHA Safety: Introduction to Powered Industrial Trucks | Approximately 100 fatalities and 36,340 serious injuries in general industry and construction occur annually due to powered industrial truck related accidents. With such staggering statistics, an employer is morally and legally obligated to take every safety precaution possible when dealing with powered industrial trucks. This 1-hour interactive online course focuses not only on the new OSHA standards for properly training employees to operate industrial trucks, but also the rules and regulations that must be followed to safely operate an array of work-oriented vehicles. | 1 | Fundamental |
| Safe Work Permits | This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc. | 1 | Intermediate |
| Worksite Safety 01: OSHA Safety Introduction | "The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 02: OSHA Electrical Safety | "OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 2 | Fundamental |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Worksite Safety 04: OSHA Struck-By & Caught-Between Accidents | ""Struck-by" and "caught-between" accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1.5 | Fundamental |
| Worksite Safety 05: OSHA Personal Protective Equipment | "Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 06: OSHA Scaffolds | "An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 07: OSHA Cranes & Other Hoists | Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 08: OSHA Power Tools and Excavations | "It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 09: OSHA Materials Storage | "The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Developing and Implementing an EPA RMP | "Any facilities that manufacture, use, store or otherwise handle certain extremely hazardous chemicals will be subjected to the EPA's Chemical Accident Prevention regulations at 40 CFR part 68.To comply with this regulation, a facility must develop and submit an EPA Risk Management Plan, or RMP, and implement it in the facility. The primary goal of an EPA RMP is to protect communities from the release of toxic or flammable chemicals that are prone to cause immediate, serious harm to public and environmental health. Thus, it is important for the practitioners to have in-depth knowledge on how to develop an EPA Risk Management Plan so it can be applied in their respective facilities. This course will provide the practitioners and participants with an overview of the EPA Risk Management Plan, the history of the RMP Rule, and requirements for compliance with the EPA's 112(r) Risk Management Program rule (40 CFR Part 68). The different program levels of an EPA RMP will be discussed, in addition to steps for developing a Risk Management Plan. The course will also address the differences between OSHA PSM and EPA RMP Program Regulations, different elements of a RMP Plan, and how to conduct a hazard assessment. Details on dispersion modeling and consequence modeling and the selection and application of these models will be covered in this course, as well as risk communication strategies and the requirements for an Emergency Response Program." | 2 | Fundamental |
| Worksite Safety 10: OSHA Demolition | "Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard.<br>OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 11: OSHA Hazards in Communication | "There are already more than 650,000 hazardous chemical products in circulation around any number of workplaces in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 0.5 | Fundamental |
| Health Effects Caused by Mold | In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans. | 1 | Fundamental |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Personal Protective Equipment For Mold Remediation Contractors and Consultants | From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. | 1 | Fundamental |
| Mold Safety and Health | Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects. | 1 | Fundamental |
| Mold Remediation | Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. | 1 | Fundamental |
| More Than Mold - Health Effects Associated With Mold and Water Damage | "Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health." | 3 | Fundamental |
| Worksite Safety 03: OSHA Fall Protection | "Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR,Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some "do's" and "don'ts" for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Safety: Electrical Part 1 - Fundamentals, Materials & Equipment Grounding | "Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components, Equipment grounding" | 2 | Intermediate |
| Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice | "This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at: Hazardous locations, Safe working clearances, Safety practices" | 2 | Intermediate |
| Developing an Employee Safety Training Program | People working in facilities, and in industry, need a solid foundation with respect to safety training, and leading people, and employees. So, this course will provide you with that solid foundation that will help you in developing a valid, and detailed, safety training program for your group. This program can then be applied to your organization's specific safety program's requirements for employee training. This course will provide you with information on Emergency Action Plans, Medical Emergency Plans, Lockout/Tagout requirements, Confined Space Entry Procedures, and other critical topics. | 1 | Fundamental |
| Fire Alarm Essentials | In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations. | 2 | Intermediate |
| Hazardous Waste: Treatment | Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste. | 1 | Intermediate |
| Confined Spaces in Construction | This course will define "confined spaces" and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces. | 1 | Fundamental |
| 2015 International Fire Code Essentials – General Safety Precautions | "How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Fire Code Essentials – Site and Building Services | "Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teachers you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council." | 2 | Fundamental |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| 2015 International Fire Code® Essentials – Fire/ Life Safety Systems and Features | "Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®." | 2 | Fundamental |
| 2015 International Fire Code Essentials – Special Processes and Building Uses | "Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teachers you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council. " | 2 | Fundamental |
| 2015 International Fire Code Essentials – Hazardous Materials | "Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function.<br>In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council." | 2 | Fundamental |
| Lead Safety in Construction: Keeping You Safe and Compliant | Lead exposure is a major health issue. Exposure to lead can cause brain damage, paralysis, kidney disease and even death however, there are many methods to protect workers from exposure. In this one-hour interactive course, we will discuss these and other acute and chronic symptoms. We'll discuss how lead is used in construction and identify the workers that are the most vulnerable to these risks. You'll be introduced to OSHA's Lead Standard on the responsibility of employers and how it's designed to protect workers. Finally, we'll go over the methods to reduce exposure to lead, including engineering controls as well as the proper protection for workers such as the use of personal protective equipment. | 1 | Fundamental |
| Protecting Your Team Against Workplace Violence | Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents. | 1 | Fundamental |
| Active Shooter and Other Acts of Targeted Violence | "Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival.<br><br>This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders. " | 1 | Fundamental |
| Fire and Smoke Dampers Simplified | Fire and smoke dampers are essential components of fire and life safety systems of a building. Their operation prevents the spread of fire and smoke and allows building occupants to safely exit a building during a fire. Fire and smoke dampers are also vital to the integrity of fire and smoke rated building assemblies. Improper specifications, installation, actuation or simply the lack of fire and smoke dampers can result in damage to a building or worse, loss of human life. This interactive online course will discuss fire walls, fire barriers, smoke barriers, fire partitions and horizontal assemblies. | 1 | Intermediate |
| Hazardous Waste Essentials | Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention. | 1 | Intermediate |
| 2015 International Fire Code®: Significant Changes | "Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®." | 2 | Fundamental |
| General Electrical Hazard Awareness for Site Safety | Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization. | 1 | Intermediate |
| NFPA 70E® - 2018 Updates | Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance. | 1 | Intermediate |
| Lab Safety: Electrical Safety in the Laboratory | This interactive course on Electrical Safety in the Laboratory emphasizes the need for safety when using electricity, and discusses how to reduce the potential for accidents involving electrical shock, fire and explosions. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lab Safety: Flammables & Explosives in the Laboratory | This interactive course on Flammables and Explosives in the Laboratory discusses the nature of flammable and explosive materials, as well as hazards associated with their use. It also reviews the proper handling procedures and personal protective equipment that should be used when working with these substances. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: GHS Safety Data Sheets in the Laboratory | This interactive course on GHS Safety Data Sheets in the Laboratory reviews the composition of GHS Safety Data Sheets, the information that's contained in each section and how SDS's are different from Material Safety Data Sheets. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Handling Compressed Gas Cylinders in the Laboratory | This interactive course on Handling Compressed Gas Cylinders in the Laboratory examines how gas cylinders work, the hazards that are associated with them and the need for caution when using or storing a cylinder. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Laboratory Ergonomics | This interactive course on Laboratory Ergonomics discusses the need to set up work areas correctly, as well as how to minimize the strain of using laboratory equipment, tools and instruments. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Laboratory Hoods | MARCOM's interactive course on Laboratory Hoods emphasizes how to properly use laboratory hoods and how to test them to ensure correct functioning... as well as discusses how hoods can protect an experiment, the facility, and most importantly, the employee. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Orientation to Laboratory Safety | This interactive course on Orientation to Laboratory Safety shows both new employees and seasoned veterans the importance of safety in the laboratory... as well as reviews the OSHA regulations and good safety practices that apply to the laboratory environment. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: OSHA Formaldehyde Standard | This interactive course on The OSHA Formaldehyde Standard provides training that is required by this standard, and focuses on the rules and procedures that the standard establishes for working with this potentially dangerous chemical. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Planning for Laboratory Emergencies | This interactive course on Planning for Laboratory Emergencies discusses how to minimize damage and prevent injuries if an emergency should occur. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Preventing Contamination in the Laboratory | This interactive course on Preventing Contamination in the Laboratory emphasizes the need to recognize situations that could lead to contamination, and discusses what can be done to prevent contamination from occurring. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Safe Handling of Laboratory Glassware | This interactive course on Safe Handling of Laboratory Glassware discusses the nature of various types of glassware, and the problems it can cause... as well as the need for employees to use and maintain laboratory glassware safely. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Safety Showers & Eye Washes in the Laboratory | This interactive course on Safety Showers and Eye Washes in the Laboratory reviews the correct ways to use this equipment, and emphasizes the need for quick action after a chemical splash or spill. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Fire! Designing Means of Escape | Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features-adequate means of egress-in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Advanced |
| OSHA Underground Construction | "This interactive online course is a brief review of Government Regulations regarding Underground Construction, Caissons, Cofferdams and Compressed Air as posted under Subpart S, Part 1926, from OSHA's Safety and Health Regulations for Construction. The course is broken into sections: Underground Construction Part I. Underground Construction Part II, Caissons & Cofferdams, Compressed Air, After reading over the OSHA material, a brief multiple choice quiz follows each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 4 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| OSHA Pressure Vessel Chemical Cracking | "A pressure vessel is a storage tank or vessel that has been designed to operate at pressures above 15 p.s.i.g. Recent inspections of pressure vessels have shown that there are a considerable number of cracked and damaged vessels in workplaces. Cracked and damaged vessels can result in leakage or rupture failures. Potential health and safety hazards of leaking vessels include poisonings, suffocations, fires, and explosion hazards. Rupture failures can be much more catastrophic and can cause considerable damage to life and property. The safe design, installation, operation, and maintenance of pressure vessels in accordance with the appropriate codes and standards are essential to worker safety and health. This 1-hour interactive online course is based on Section IV: Chapter 3 of the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) Technical Manual, Pressure Vessel Guidelines. This course focuses on pressure vessels and low pressure storage tanks used in process, pulp and paper, petroleum refining, and petrochemical industries for water treatment systems of boilers and steam generation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Safety: Working with Chemicals | This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Intermediate |
| 8-Hour HAZWOPER Refresher | This series of courses meets the 8-hour OSHA HAZWOPER annual refresher training requirement for workers at hazardous waste sites. While this set of courses is designed to meet OSHA's HAZWOPER annual refresher requirements, your employer must provide any other site-specific and job-specific training deemed necessary. This set of courses does NOT cover: Incident Review Requirements - To meet OSHA's HAZWOPER incident review requirement, your employer must provide incident review training and any other site-specific and job-specific training deemed necessary by your employer. Hands-On Training - Your employer is expected to provide hands-on training, have a qualified trainer available for questions, and determine what additional training is needed to satisfy your training program requirements. | 8 | Intermediate |
| Respirators - Voluntary Use | A respirator is a piece of personal protective equipment (PPE) that protects its user from inhaling hazardous substances in the form of dusts, mists, fumes, gases, or vapors. There are many different types of respirators; each type protects its user from a specific airborne hazard. Voluntary use situations occur when workers use respirators even when they are not required. When employers allow the "voluntary use" of respirators, there are several requirements they must fulfill. | 0.25 | Intermediate |
| Workplace Hazardous Materials Information System (WHMIS) | The Workplace Hazardous Material Information System (WHMIS) is a hazard communication system that ensures Canadian workers are provided with sufficient information to understand the hazards of the chemicals they may be exposed to in their workplace. WHMIS requires employers to communicate hazard information by labeling containers, providing safety data sheets, and training employees to recognize hazardous materials and how to protect themselves and their coworkers. This course provides an overview of WHMIS requirements. | 0.5 | Intermediate |
| HAZWOPER Site Control | Whether responding to an emergency or cleaning up hazardous waste, control of the work site is essential. Each site is unique and many factors must be considered when securing it, including the hazards present, size of the site, and the proximity of the surrounding community. The movement of people and equipment at the site must be carefully managed to minimize worker exposure and protect the public from hazards. This course describes practices and procedures for establishing and maintaining control of the site. | 0.61 | Intermediate |
| DOT Reasonable Suspicion Supervisor Training - Alcohol | Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employees appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of alcohol misuse. This course describes the purpose of DOT testing regulations, defines reasonable suspicion, lists the signs and symptoms of alcohol use, and describes best practices for conducting reasonable suspicion interviews and alcohol testing. | 1 | Intermediate |
| DOT Reasonable Suspicion Supervisor Training - Drugs | Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employees appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of DOT-prohibited drug use. This course describes the five DOT-regulated drug classes, including their signs and symptoms of use, the types of observations that can be used for reasonable suspicion drug test determinations, and what happens during a reasonable suspicion interview, specimen collection, and drug testing. | 1 | Intermediate |
| Delivery Truck Maintenance | "Many businesses depend heavily on their fleet of vehicles. In some businesses, such as package or propane delivery, or taxis, the fleet really is the business. In other cases, such as trades like electricians and plumbers, the vehicle is somewhat secondary to the actual job being performed, but no less important. In order for businesses which rely on vehicles to thrive, those vehicles which make up the fleet need to be able to operate safely and properly as close to 100% of the time as possible." | 0.5 | Intermediate |
| HAZWOPER Air Monitoring | Airborne contaminants present the greatest danger to hazardous waste and emergency response workers. Air monitoring is required to identify and quantify airborne hazards, so appropriate protective measures can be implemented. An air-monitoring plan must be included as part of a site-specific Health and Safety Plan (HASP). This module will discuss the requirements of an air monitoring plan, the sensors used to detect hazardous conditions, and what actions should be taken based on monitoring results. | 0.6 | Intermediate |
| HAZWOPER Chemical Protective Clothing | Chemical protective clothing is often required when responding to emergencies involving hazardous materials. This module describes the various types of chemical protective clothing used during hazardous waste operations and emergency response. | 0.38 | Intermediate |
| HAZWOPER Chemical Protective Clothing Selection | Chemical protective clothing is selected by comparing its capabilities and limitations to the hazards and required tasks. It is important to remember that no material is completely chemical resistant, and no material is effective for all chemicals. This module will describe important factors for selecting appropriate chemical protective clothing. | 0.43 | Intermediate |
| HAZWOPER Confined Spaces | All hazards typically found in regular work areas can also be found in confined spaces, but there are additional hazards that make confined spaces more dangerous. Confined spaces that present safety or health hazards require a permit for entry, so they are called permit-required confined spaces. This module will describe OSHAs permit-required confined space regulations and typical confined space emergency response procedures. | 0.51 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| HAZWOPER Decontamination | Decontamination, or decon for short, is the removal of hazardous materials from workers and equipment to prevent adverse health effects. It is critical that all emergency responders are protected and off-site contamination is prevented. The correct approach must balance safety with responding in a timely manner to contain the incident. This module covers decontamination best practices. | 0.65 | Intermediate |
| HAZWOPER Emergency Response Plan | Planning is critical for safe, timely responses to hazardous material incidents. The HAZWOPER standard requires employers whose employees respond to releases of hazardous materials at any location to have a written emergency response plan. This includes both fixed-location employers like industrial facilities and those that deploy from a duty station to various locations, such as a fire department or emergency medical service. This module describes the required information in emergency response plans. | 0.46 | Intermediate |
| HAZWOPER Hazmat Physical Properties | The physical properties of a hazardous material provide information to help responders understand its behavior, whether in its container or after it has been released. This module describes the following physical properties: physical state, melting point, boiling point, vapor pressure, vapor density, specific gravity, expansion ratio, flash point, solubility, pH, reactivity, and toxicity. | 0.33 | Intermediate |
| HAZWOPER Incident Command System | An incident is any event that requires emergency response to protect life or property. OSHAs HAZWOPER standard requires all organizations that handle hazardous materials to use the Incident Command System (ICS). The ICS is a component of the National Incident Management System (NIMS) that provides a standard approach for incident management. ICS allows for the integration of facilities, equipment, personnel, procedures, and communication systems within a common organizational structure. ICS enables a coordinated response among various agencies, both public and private, and it establishes common processes for planning and managing resources. This module describes all aspects of the incident command system. | 0.7 | Intermediate |
| HAZWOPER Medical Surveillance | HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and aren't experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed. | 0.4 | Intermediate |
| HAZWOPER Overview | Unexpected releases of hazardous materials pose a significant risk to workers and the general public. There are many causes of unexpected releases, such as human errors, equipment failures, or even natural disasters. To protect workers who work with hazardous materials, the Occupational Safety and Health Administration (OSHA) created the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). This module provides an overview of the HAZWOPER standard, who it applies to, and its requirements. | 0.35 | Intermediate |
| HAZWOPER Ionizing Radiation Safety | Radiation is energy emitted from a source that travels through space in a straight line at the speed of light. We are surrounded by radiation. Sunlight, radio waves, microwaves, and cell phone signals are all forms of low-energy radiation. These types of radiation are considered non-ionizing radiation and are relatively harmless. Ionizing radiation is radiation in the form of particles or electromagnetic waves that have enough energy to remove electrons from atoms in materials they strike. This module will focus on ionizing radiation, which can be hazardous. | 0.56 | Intermediate |
| HAZWOPER Respirators | Respirators are required when working around hazardous materials that present an inhalation hazard. A respirator is a personal protective device that covers at least the nose and mouth to reduce the amount of contaminated air inhaled by the user. This module will discuss the types of respirators typically used for hazardous waste operations and emergency response. | 0.7 | Intermediate |
| HAZWOPER Risk Assessment | The top priority of incident response is the safety of responders and the general public. Risk assessment is the most important aspect of an incident response because the incident cannot be managed safely if the problem and risks are not understood. Failure to do a risk assessment can result in serious injuries or death. Each incident is unique, so deciding what to do and when, can be difficult. This module will cover various hazard identification techniques to help you make better decisions when responding to hazardous material incidents. | 0.53 | Intermediate |
| HAZWOPER Safety and Health Program | HAZWOPER requires employers to have a written, site-specific safety and health program. The program must be designed to identify, evaluate, and control health and safety hazards and provide emergency response information. This module will provide an overview of the required safety and health program elements. | 0.25 | Intermediate |
| HAZWOPER Release Mitigation | "Emergency release response actions can be divided into three main steps: 1. Identify the materials that have been released 2. Assess the severity and risk and 3. Select and implement methods to mitigate the release.<br>Material identification and risk assessment are covered in other modules. This module focuses on the third step, release mitigation methods and their applicability. " | 0.51 | Intermediate |
| HAZWOPER Toxicology | A chemicals ability to cause adverse health effects in people or animals is indicated by its toxicity. The more toxic a substance is, the smaller the dose required to produce a damaging effect. This module will help you better understand toxicity and exposure limit information so you can prevent dangerous exposures. | 0.51 | Intermediate |
| DOT Alcohol and Drug Testing for Drivers | Employees of DOT-regulated employers who perform or could perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes over 12 million workers employed as airline pilots, bus drivers, commercial truck drivers, crew members on cargo ships, train engineers, and many others. Employers are required to implement a Drug and Alcohol Program and provide clear explanations of company policies and DOT testing regulations. They must also employ a Designated Employee Representative (DER) to administer the program, receive test results, remove employees from safety-sensitive duties when required, and answer questions about the program and testing process. | 0.75 | Intermediate |
| DOT CSA Awareness | The FMCSA implemented the Compliance, Safety, and Accountability (CSA) program to improve the safety of commercial motor vehicles on public roadways. This program uses performance and compliance data from roadside inspections, State-reported CMV crash records, carrier safety investigations, and carrier DOT registrations to focus FMCSA resources on the carriers who pose the greatest safety risk. Through compliance, the CSA program allows carriers and drivers to rectify safety concerns before crashes, injuries, or fatalities occur. | 0.75 | Intermediate |
| DOT Hours of Service Compliance | The goal of the FMCSA Hours of Service (HOS) regulations is to improve public safety by keeping fatigued commercial motor vehicle drivers off the roads. These regulations apply to motor carriers and CMV drivers who engage in interstate commerce, and they are designed to ensure that drivers have enough time off to get the rest they need on a daily and weekly basis. The HOS rules are necessary because people are not good at judging their own drowsiness. They have been revised several times as our understanding of fatigue improves. | 0.75 | Intermediate |
| DOT Hazmat - Security Awareness | In 2010, the Pipeline & Hazardous Materials Safety Administration (PHMSA) published a rule modifying the security requirements for the commercial transportation of some hazardous materials. This rule requires shippers and carriers of certain types and quantities of hazardous materials to implement a Hazardous Materials Safety and Security Plan (a.k.a. Security Plan) and provide additional security training to employees. Among other things, they must ensure subject hazmat packages and containers are properly closed and secured, select routes that will minimize damage to or from hazardous materials, conduct background investigations on new employees, confirm the adequacy of carrier Security Plans, and integrate all aspects of the security rule into their normal business activities. | 0.5 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| DOT Hazmat - Marking | The packaging used to secure hazardous materials during transport typically contains markings and labels to indicate that it contains a hazardous material. The purpose of these markings and labels is to communicate the hazards and risks of the materials being transported to anyone who could be exposed to them. All markings must be legible and durable; clearly visible; written in English; printed on or affixed to the package surface or a label, tag, or sign; and placed away from other markings (such as advertising) that could substantially reduce their effectiveness. DOT marking requirements are detailed in Part 172, Subpart D of the HMR. | 0.75 | Intermediate |
| DOT Hazmat - Placarding | The DOT requires marking, labeling, and placarding of hazardous materials being transported in commerce to, from, or within the U.S. The term placarding refers to the placement of large durable versions of hazard labels on transport vehicles, bulk packages, freight containers, unit load devices, and rail cars. The purpose of marking, labeling, and placarding is to communicate the potential dangers of hazardous materials. Placards are especially important to emergency responders, who use this information to initiate protective actions after an incident or accidental release. | 0.75 | Intermediate |
| DOT Hazmat - Labeling | The packaging used to secure hazardous materials during transport typically contains markings and labels to indicate that it contains a hazardous material. The purpose of marking and labeling is to communicate the hazards and risks of the materials being transported to anyone who could potentially be exposed to them. Labeling refers to the placement of primary and, if applicable, subsidiary hazard labels on the outer package. DOT labeling requirements are contained in Part 172, Subpart E of the HMR. | 0.75 | Intermediate |
| HAZWOPER ERG Introduction | The Department of Transportations Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries. | 0.38 | Intermediate |
| DOT Hazmat - General Awareness | Regulations related to the transportation of hazardous materials are contained in Title 49 of the U.S. Code of Federal Regulations (CFR). The Hazardous Materials Regulations (HMR) in Parts 171-180 of Title 49 regulate the transportation of hazardous materials in commerce by motor vehicle, rail car, aircraft, or waterborne vessel. The HMR include classification, labeling, packaging, handling, loading and unloading requirements, in addition to standards for hazmat training, incident reporting, hazard communication, and security. | 0.75 | Intermediate |
| DOT Hazmat - Shipping Papers | Shippers of hazardous materials including hazardous wastes, hazardous substances, and marine pollutants must prepare and certify shipping papers before offering these materials for commercial transportation to, from, or within the U.S. Shipping papers identify and classify the hazardous materials being shipped, and notify shippers and carriers of their hazards. They help define the protective measures necessary to protect employees, the public, and the environment, and can provide critical information to emergency response personnel. | 0.75 | Intermediate |
| DOT Hazmat - Highway Carrier Loading and Unloading Requirements | The Hazardous Materials Regulations (HMR) apply to the transportation of hazardous materials in commerce. This includes the movement of these materials, plus all associated loading, unloading, and storage activities. Part 177 of the HMR contains requirements related to the transportation of hazardous materials by private, common, and contract for hire motor carriers. These carriers must also comply with several other Parts of the HMR, and many requirements of the Federal Motor Carrier Safety Regulations (FMCSR). | 0.5 | Intermediate |
| DOT Hazmat - Highway Carrier Segregation Requirements | Certain hazardous materials must be separated from each other during transportation in a manner that prevents commingling if a package failure or leakage were to occur. The segregation requirements for highway hazmat shipments are contained in Section 177.848 of the HMR. These requirements apply only to the Hazard Classes and Divisions listed in the HMRs Segregation Table and only if the materials are in packages that require labeling or placarding, a compartment within a cargo tank, or a portable tank loaded in a container or vehicle. | 0.5 | Intermediate |
| DOT Hazmat - Packaging | The primary function of hazmat packaging is to ensure that hazardous materials remain intact and secure during transportation. All packaging must be designed to ensure that under normal conditions, the contents will not be released and the packaging effectiveness will be maintained as it experiences typical physical stresses, including shocks, vibrations, temperature extremes, and changes in humidity and pressure. The Hazardous Materials Table (HMT) in Section 172.101 of the HMR can be used to determine the non-bulk and bulk packaging requirements, and any conditions for packaging exceptions, for hazardous material shipments. | 1 | Intermediate |
| Office Safety | "While we most often associate workplace injuries with construction, mining, manufacturing, and other manual labor jobs, injuries can occur even if you spend most of your workday sitting at a desk. Therefore, recognizing common hazards in an office environment and knowing how to reduce risks is vital to creating a safer workplace. This course discusses the common hazards in an office environment and how to reduce risks in order to help create a safer workplace." | 0.25 | Intermediate |
| Order Picker Safety | An order picker is a forklift with an operator platform that raises with the forks. This allows operators to pick, or retrieve, individual items instead of entire pallets stored on high shelves. Order pickers are specially designed to operate in narrow aisles, where there is often only a few inches of clearance on either side. There are several obvious hazards associated with working at heights in narrow aisles, including falls, tip-overs, and falling objects. This course discusses how to safely operate order pickers. | 0.25 | Intermediate |
| Turret Truck Safety | A turret truck, also known as a swing-reach truck, is a forklift with forks that can pivot 180 degrees and traverse across its entire width. This allows pallets to be stored and picked up at right angles to the turret truck. Also, unlike a standard forklift, the operator compartment raises with the forks. Turret trucks are specially designed to operate in narrow aisles, where there is very little clearance on either side. Because of these unique design features and operating conditions it is important to become familiar with their operation and safety guidelines prior to operating a turret truck. This module covers common hazards, turret truck safety equipment, and safe operating procedures. | 0.25 | Intermediate |
| Cell Phone Use in the Workplace | "Cell phones have become a standard part of everyday life. They allow us to call or text, find directions, take and share pictures, schedule our lives, deposit money, listen to music, and keep up with social media. While cell phones have many positive aspects, there is a time and place for their use. Using a cell phone improperly at your job site can pose dangers to you and your coworkers. This course will cover these dangers as well as best practices associated with cell phone use." | 0.5 | Intermediate |
| DOT Roadside Inspections | Specially trained inspectors use procedures and criteria from the CVSAs North American Standard Inspection Program to conduct roadside inspections of CMVs and CMV drivers in the U.S., Canada, and Mexico. This program identifies the critical inspection items and unsafe conditions that can place vehicles or drivers Out-of-Service, and it ensures a uniform and reciprocal inspection and enforcement process in North America. This course details the roadside inspection process and eight inspection levels, lists the violations that can place a driver or vehicle Out-of-Service, and give some tips on avoiding and surviving inspections. | 0.25 | Intermediate |
| Hazard Perception - Hidden Hazards | Hidden hazards are not easily identifiable. They are partially or completely hidden from your view, but still have the potential to develop into a risk. Because the hazard is partially or completely hidden, it is unlikely you will be able anticipate the risk far in advance. This course will identify examples of hidden hazards and best practices to reduce the risks of these hazards. | 0.25 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Backing Up Safely | How often do you need to back up your vehicle? If you are like most drivers, you spend less time backing up than driving forward. However, backing up is one of the more risky maneuvers you do throughout the day, especially if it is in crowded parking lots or restricted spaces. This course will identify potential hazards for backing up and best practices for avoiding those hazards. | 0.25 | Intermediate |
| Preventing Sideswipe Collisions | Have you ever noticed another vehicle drifting slowing across the lane line into your lane? Or perhaps your vehicle was the one unintentionally crossing the lane line into another lane? If so, you are not alone, this is a common sideswipe crash scenario. This course will identify potential hazards that may lead to sideswipe crashes and best practices for avoiding those hazards. | 0.25 | Intermediate |
| Preventing Intersection Collisions - Cross Traffic | Intersections are one of the most dangerous locations on any roadway. You should pay particular attention to the cross traffic as you approach the intersection. Cross traffic includes all road users that are traveling on the intersecting road and may cross or enter your path. This course will identify common contributing factors to cross traffic intersection collisions and strategies to prevent intersection collisions due to cross traffic. | 0.25 | Intermediate |
| Sharing the Road with Pedestrians and Cyclists | Unless you are driving on an interstate, it is possible you will be sharing the road with other types of road users. For example, you may encounter pedestrians and bicyclists while driving in urban, suburban, or rural areas. These situations are dangerous because collisions between vehicles and cyclists or pedestrians often result in serious injuries or fatalities. This course will identify clues that cyclists and pedestrians may become hazards and strategies to prevent collisions with cyclists or pedestrians. | 0.25 | Intermediate |
| Preventing Loss of Control Crashes | Have you ever unexpectedly lost control of your vehicle while driving? Perhaps you lost control of your vehicle in inclement weather. Maybe it was raining hard and you applied the brakes suddenly, or you crossed a bridge that was covered with ice. Or, maybe you lost control because you had to suddenly steer to avoid hitting another vehicle or object. If so, you are not alone. These are all common factors that lead to loss of control events. This course will identify common loss of control crashes and then discuss ways to reduce loss of control and how to regain control. | 0.25 | Intermediate |
| Preventing Intersection Collisions - Rear-ends | More than 25 percent of all car crashes are rear-end collisions. A rear-end crash occurs when the front of one vehicle comes into contact with the rear of another vehicle. This course will describe contributing factors to rear-end crashes and identify strategies to prevent rear-ending or being rear-ended by another vehicle. | 0.25 | Intermediate |
| Dangers of Distracted Driving | Driver distraction has become a serious problem, and unfortunately, seems to be increasing. Think about the last time you drove or rode in a car. Did you notice other distracted drivers? Or, were you distracted while driving? Even though most people know distracted driving is risky, they still become distracted while they drive. This course will describe why distracted driving is risky and identify strategies to reduce distracted driving. | 0.25 | Intermediate |
| Preventing Intersection Collisions - Turning | Intersections are one of the most dangerous locations on the roadway. Research has shown that a large number of crashes every year occur in an intersection or are intersection-related. This course identifies intersection hazards and strategies to prevent crashes in intersections. | 0.25 | Intermediate |
| Environmental Driving Hazards | Although most driving occurs during the daytime hours with good visibility, there are instances where you may have to drive with limited visibility or in inclement weather. This course identifies common environmental hazards and strategies to prevent crashes related to environmental hazards. | 0.25 | Intermediate |
| Speed and Space Management | Speeding is one of the contributing factors in a large percentage of crashes. Not only does speeding above the posted speed limit increase your risk of being involved in a crash, it also increases the severity of the crash. High speed crashes are more likely to result in a fatality or injury compared to lower speed crashes. This course will identify why it is important to manage your speed and space around your vehicle and describe strategies for effective space management. | 0.25 | Intermediate |
| Work Zone Driving Hazards | Work zones or construction zones are some of the most risky locations on any road. In the United States, a crash occurs in a work zone every 5 to 6 minutes. These crashes result in dozens of serious injuries every day and multiple fatalities each week. This course will identify why work zones are hazardous and describe strategies to reduce your risk of a crash in a work zone. | 0.25 | Intermediate |
| Fatigue Management | Fatigue in the workplace is a dangerous condition in which an individual may not make good decisions or react quickly enough. This course will describe situations or conditions that lead to fatigue, and how employers and employees can take steps to minimize the possible negative effects of fatigue. | 0.25 | Intermediate |
| Environmental Awareness | "Maintaining a healthy environment is essential for a healthy life. We all need clean air to breathe, clean water to drink, and safe food to eat. You need to be aware of and understand how your job impacts the environment, so you can do your part to help protect it. This course discusses basic environmental regulations and how to be a good environmental steward. This course also talks about resource conservation, how to reduce and dispose of waste, and finally how to be prepared in the case of an environmental incident." | 0.25 | Intermediate |
| Vehicle-Mounted Aerial Device Safety | Vehicle-mounted elevating and rotating work platforms (also called aerial lifts, aerial devices, and bucket trucks) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. This interactive online course will list the types and categories of vehicle-mounted aerial devices (VMADs) and their main components, discuss safe work practices when working with VMADs, requirements for owners, users, and operators, as well as inspection requirements for VMADs. | 0.75 | Intermediate |
| Mobile Elevating Work Platform (MEWP) Safety for Supervisors | Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for supervisors of MEWP operators. It covers the latest MEWP Group and Type designations, and updated design, use, and training requirements. | 1 | Intermediate |
| Mobile Elevating Work Platform (MEWP) Safety | Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for MEWP operators and occupants. It covers MEWP Group and Type designations, as well as MEWP design, use, and training requirements. | 0.75 | Intermediate |
| Investigation of Failures | This interactive online course identifies common causes of equipment failures and the steps involved with prioritizing the failure events and conducting failure investigations. The learner will be introduced to several investigative analysis tools used to forensically exam the failure and the importance of maintaining equipment histories. | 0.5 | Intermediate |
| Personal Accountability for Safety | The goal is for every person to go home safe every day. To achieve this, we must all be personally accountable for safety. This module describes what it means to be accountable and how you can demonstrate personal accountability. | 0.25 | Intermediate |
| Radiofrequency (RF) Radiation Hazard Prevention | Radiofrequency (RF) radiation is the transmission of energy by electromagnetic radio waves or microwaves. You can't see it, smell it, hear it, or touch it, but the more you know about RF radiation, the better you will be at managing operations that produce it, and reducing the risks associated with it. Low levels of exposure to RF radiation have not been shown to be harmful, but prolonged exposure to very high levels of RF radiation can burn human tissue. No links have been proven between exposure to RF radiation and more severe health effects, like cancer or reproductive defects. Telecommunication and radar transmitters can produce high-intensity RF radiation environments that are potentially hazardous to anyone operating and maintaining this equipment. This course is designed to provide a general overview and understanding of the hazards associated with radiofrequency radiation. | 0.66 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Overhead Hoists | Do you know the basic safety and functional characteristics of working with a hoist? This interactive online course is intended for those authorized to operate or work around motorized and hand-operated hoists. You will learn about the different types of hoists and will be able to identify some of the instrumental parts of the hoists. Well show you how hoists are powered and how to operate them and inspect them safely. The material in this course is meant to supplement and support the training necessary to safely operate certain motorized and hand-operated hoists. This course provides the essentials of hoist operation and must be accompanied by both a knowledge and operational examination to determine competency of the operator. This course, alone, does not authorize operation of hoists. | 0.5 | Intermediate |
| Line-of-Fire Safety | Line of fire is a term used to describe being in harm's way. A person in the path of an object or hazardous energy is in the line of fire. Over one-quarter of all workplace fatalities are the result of line-of-fire incidents. This module discusses how to identify common line-of-fire hazards and how to protect yourself and others from those hazards. | 0.25 | Intermediate |
| Crane Lift Planning | When involved with a lift have you ever asked yourself, "I wonder if the crane is big enough?" or "Is the rigging set up properly?" or "Is it safe to move loads over or under a power line?". If you have thought of questions like these, then chances are there was too much risk in the lift. In this interactive online course we will cover, why lift planning is important, when a plan is needed, and who prepares the plan. We will also discuss the key roles and responsibilities associated with crane lifting activities and identify what information is contained in a lift plan. Then we will cover the purpose and value of a pre-lift meeting and the function of 3D computer modeling software in creating a lift plan. | 0.5 | Intermediate |
| Banding Safety | For many freight carriers, loads must be secured to prevent shipping damage. Proper securing is especially important for uneven and bulky loads that are placed in semi-trucks. Unsecured loads can cause the truck to be imbalanced, which could potentially cause an incident while the truck is moving or being unloaded. This course will provide an overview of banding safety, and the practices a material handler will need to remain safe when banding and un-banding loads. | 0.5 | Intermediate |
| Cut and Puncture Wound Prevention | Workplaces are full of cut and puncture wound hazards. Some cuts are minor and can be simply addressed by those trained in first aid; others require a trip to the emergency room. This course discusses how to treat cuts and puncture wounds, and more importantly, how to prevent even minor injuries from occurring in the first place. | 0.5 | Intermediate |
| Battery Acid and Spill Safety | Battery acid is a corrosive substance that can be harmful to individuals if it leaks or is spilled out of an enclosed battery. Therefore, prompt cleanup of all battery acid spills is necessary to prevent injuries. This course will explain procedures that will help you identify the hazards associated with batteries, limit your exposure to those hazards, and teach you how to properly handle spills and releases. | 0.75 | Intermediate |
| Metalworking Fluid Safety | Metalworking fluids, or MWFs, are used for cooling and lubrication during metal machining operations. When not properly handled, metalworking fluids can cause various health concerns. This course will provide you with the tools to protect yourself when working with metalworking fluids. | 0.6 | Intermediate |
| Asbestos Awareness - 2 Hour Training | Asbestos is a group of naturally occurring silicate mineral fibers that have been used extensively in thermal insulation products, building materials, and vehicle brakes and clutches. Despite many of its desired unique properties in commercial and industrial uses, it has been determined that sustained exposure to elevated concentrations of airborne asbestos can lead to serious and potentially fatal health conditions. Some of these conditions can take 20 years or more to develop, therefore early detection and avoidance of asbestos is vital. This interactive online course describes what asbestos is and the hazards it presents. | 2 | Intermediate |
| Electric Pallet Jack Safety | Electric pallet jacks are useful tools designed for horizontal transport of palletized materials. More advantageous than manual pallet jacks, electric pallet jacks can move larger loads through tight spaces while allowing the operator to easily start and stop the vehicle. It is important to know how to safely operate electric pallet jacks. This course discusses pre-operation inspections, load preparation, PPE, and proper operating procedures. | 0.5 | Intermediate |
| DOT Hazmat - In-depth Security | The 2010 Pipeline & Hazardous Materials Safety Administration (PHMSA) Security Rule requires commercial shippers and carriers of certain types and quantities of hazardous materials to implement a Hazardous Materials Safety and Security Plan (a.k.a. "Security Plan"). This course identifies the types and quantities of hazardous materials that are covered by the rule, lists the required elements of and record keeping requirements for Hazardous Materials Security Plans, describes the three types of security that must be addressed by a Security Plan (personnel, route, and unauthorized access), and describes the general and in-depth training requirements for hazmat employees. | 0.6 | Intermediate |
| Bloodborne Pathogens | "Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. There are a number of relatively simple actions which can be taken to drastically reduce the chance of exposure to bloodborne pathogens. Depending on the type of work being done, workplace practices and methods can be modified to minimize the chance of exposure. Proper personal protective equipment is an important component in preventing the transfer of bloodborne pathogens from an infected person to a healthy person." | 0.43 | Intermediate |
| Electrical Safety General Awareness | Spark discussion with your team on effective ways to recognize, evaluate, and avoid electrical hazards. Topics covered include personal protective equipment related to electrical safety, OSHA requirements for working on equipment, and electrical injuries such as shocks, burns, electrocutions, and falls. | 0.25 | Intermediate |
| Ergonomics for Office Environments | Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in office environments, examples of awkward postures and positions, proper lifting technique, workstation setup, work habits, and stretches. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience. | 0.5 | Intermediate |
| DOT ERG Introduction | The Department of Transportations Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries. | 0.25 | Intermediate |
| Formaldehyde Awareness | Breathe easy with a better understanding of working safely around Formaldehyde. This course provides information on the history and production of formaldehyde as well as its uses, sources, exposure regulations, the types of formaldehyde, and the effects of exposure to formaldehyde gas. | 0.25 | Intermediate |
| Clean Water Act Section 404 Permits | The Clean Water Act (CWA) protects "waters of the United States" (WOTUS) by prohibiting the discharge of dredged or fill materials without a Section 404 permit. This training provides general guidance for which waters are considered WOTUS, and the requirements for obtaining a Section 404 permit. | 0.75 | Intermediate |
| Hydrogen Sulfide Awareness | Sometimes what you can't smell can hurt you. Protect yourself and your team with this critical information that raises awareness of what Hydrogen Sulfide (H2S) is and discusses exposure risks and effects, toxicity, ignition, detection, prevention, and evacuation. | 0.25 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hand and Power Tools | The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines. | 0.38 | Intermediate |
| Lead Awareness | Before you cut, grind, or burn through any painted surface at work or at home, better make sure you know what you're dealing with. Protect yourself and your team from unintentional lead exposure with this course that defines what lead is and provides information on its history and usage, reduction efforts, lead exposure, effects, detection and treatment, personal protective equipment (PPE), and prevention methods. | 0.25 | Intermediate |
| Pedestrian Safety | Basic training on safely walking in active work zones. Learn about blind spots, the importance of eye contact, and designated walkways. Covers pedestrian safety guidelines, mobile equipment guidelines, and forklift driver guidelines. | 0.25 | Intermediate |
| Radiation Safety | The myths surrounding radiation exposure may be great for a Hollywood screenplay, but they won't help you work safely around radiation at your facility. Use this radiation safety course to learn about ionizing and non-ionizing radiation, gamma rays, isotope encapsulation, radiation-based sensor usage, radiation strength, and exposure minimization. We're sure you'll find our radiation course a valuable asset to your safety program! | 0.25 | Intermediate |
| Hexavalent Chromium | Protect yourself and your team from increased risk of cancer with our training designed to raise awareness about the dangers of hexavalent chromium exposure. Welders and other workers who handle or assemble electronic components may be at higher risk of exposure to this known human carcinogen. Learn what hexavalent chromium is, how it's formed, the health hazards it presents, and what personal protective equipment you can use to protect yourself. Our training will also give you a better understanding of OSHA permissible exposure limits, monitoring, record keeping, medical surveillance, and employee notification. You'll also learn about industry best practices related to engineering and administrative controls to protect workers from dangerous exposure to hexavalent chromium. | 0.5 | Intermediate |
| Combustible Dusts | It's only DUST! What's the big deal? Under the right conditions, many types of industrial dust, including coal, paper, and wood dust, can ignite and produce a devastating explosion. With our Combustible Dusts course, you'll learn to identify the hazards of combustible dust by using the Dust Fire and Explosion Pentagon. You'll get a clear understanding of dust control and preventions measures as well as dust analysis and explosion risk reduction. Our course will also help identify additional risks and prevention techniques associated with primary and secondary dust explosions. | 0.25 | Intermediate |
| Forklift Safety | Contains basic forklift operating procedures intended to increase safety and help prevent the most common forklift accidents. Provides information on the most common types of forklifts used in general industry and warehouse environments. Includes important information required by OSHAs general industry standards (29 CFR 1910.178) as well as best practices on operating powered industrial trucks. | 0.73 | Intermediate |
| Hot Work Safety | This course covers basic guidelines and best work practices for performing hot work safely. Before welding, cutting, or brazing metal or performing any work that could generate enough heat or sparks to start a fire, everyone involved should be properly trained on the fundamentals of hot work safety. Based on NFPA 51B and 29 CFR Subpart Q regarding welding, cutting, brazing, and other hot work, this course is intended to help workers recognize the potential hazards of hot work and avoid injuries and property damage by properly planning, preparing for, and performing hot work. | 0.47 | Intermediate |
| Safety Management: Hot Work Permit | This course covers the use of hot work permits at general industry facilities. A hot work permit refers to an employers written authorization to perform hot work operations. There is no one standard for Hot Work Permits; different facilities will have different forms and different procedures. This course serves as an introduction to the common protocols in place at most workplaces that are meant to ensure safe conditions before hot work can begin. | 0.25 | Intermediate |
| Forklifts - Reducing Product Damage | This course covers the common ways forklift operators cause product damage in a warehouse environment, and recommended practices for avoiding this damage. It is meant to be used as an introductory or refresher course for forklift operators. | 0.25 | Intermediate |
| Machine Guarding | This course covers the importance of having industrial machine hazards properly guarded and protected against. This course is aligned with OSHA General Industry standards and industry best practices. It is meant to be used as an introductory or refresher course for general industry workers who will be operating or working near industrial machinery. | 0.62 | Intermediate |
| Safety and Health - Basic | This course covers basic guidelines and best practices for safety in a variety of industrial workplaces. From identifying and avoiding common workplace hazards to housekeeping and incident reporting, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team. | 0.25 | Intermediate |
| Safety and Health - Advanced | This course covers more advanced guidelines and best practices for safety in a variety of industrial workplaces. With safety topics including working around mobile equipment, hazardous chemicals, and moving machine parts, this course provides advanced concepts critical to establishing safe work habits for yourself and your team. | 0.25 | Intermediate |
| Lead-Based Paint Safety | This course covers basic guidelines and best practices for working safely around lead-based paint. Even though U.S. legislation passed in 1978 has dramatically limited the allowable lead levels in paint, lead-based paint is still present in many residential and commercial buildings. Based on OSHA standards set forth in 29-CFR 1910.1025 related to lead exposure in the workplace, this course is designed to help workers recognize and avoid the hazards associated with lead-based paint. | 0.5 | Intermediate |
| Hydraulic Fluid Safety | This course covers basic guidelines and best practices for working safely around common hydraulic equipment. From bottle jacks to forklifts and shop equipment, this course provides important information on the principles of hydraulics and the hazards that hydraulic systems can present. Based on OSHA documents and industry experience, this course is designed to help workers understand how to recognize common hydraulic hazards and avoid serious injuries. | 0.47 | Intermediate |
| Trenching and Excavation Safety | This course covers safe work practices for excavation and trenching work. It is meant to be used as an introductory or refresher course for construction workers involved in digging or working in an excavation. It is based on OSHA Construction regulations and industry best practices. | 0.5 | Intermediate |
| Crane and Hoist Rigging Safety | Definition of rigging and slings, importance of safe rigging, load considerations, types of slings, types of sling hitches, safe rigging practices, and commonly required personal protective equipment (PPE). | 0.53 | Intermediate |
| Line Breaking Safety | "Line breaking is the intentional opening of a pipe, line, or duct that contains or has contained material capable of causing injury. OSHA requires that all members of a line breaking team understand the hazards related to the material and equipment involved.<br><br>This course illustrates common hazards of line breaking and provides suggested preventative measures for this type of work. Based on general industry best practices and OSHA regulations, this course covers basic safe work procedures recommended by industry professionals when planning or working on a line break." | 0.5 | Intermediate |
| Heat Stress Symptoms and Prevention | Heat stress can take a number of different forms, including heat rash, heat cramps, heat syncope (fainting), heat exhaustion, and heat stroke. Each of these conditions has its own signs, symptoms, and treatments. This course will help you to recognize each condition, and to know which ones require simple corrective actions, like taking a break, and which ones may require a trip to the hospital. | 0.4 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Safety Management: Industrial Hygiene Basics | Industrial hygiene (or occupational hygiene, outside of the U.S.) is the discipline of evaluating and controlling workplace hazards in order to protect the health and well being of workers and the community. This involves monitoring of work environments, evaluating exposures to hazards, and employing controls to prevent or minimize exposures and their effects. This course describes the job responsibilities of an industrial hygienist, discusses common workplace hazards, and details measures that can be used to control these hazards. | 0.5 | Intermediate |
| Driving Preparation | Be prepared for any trip with our Driving Preparation training that provides the basics of vehicle maintenance and inspection as well as suggestions for planning your route. Our course also suggests some valuable emergency supplies that can help prevent a minor inconvenience from becoming a major problem, such as common tools, spare tire, jumper cables and more. In addition to saving time and other costs, proper driving preparation can ultimately save your life as well as the lives of other drivers, passengers, and pedestrians around you. | 0.25 | Intermediate |
| Alert Driving | Understanding the importance of being an alert driver can mean the difference between life and death. Learn how to observe conditions around you, anticipate hazardous situations, and react to avoid hazards with our Alert Driving course. Our course discusses driving at safe speeds, the dangers of driving while impaired, and illustrates how to increase your reaction time by following the two-second rule. Alert driving is a fundamental element of safe, defensive driving techniques. | 0.25 | Intermediate |
| Driving Hazard Recognition | Safe drivers recognize potential hazards and stay out of harm's way. With our Driving Hazard Recognition course, you'll learn techniques for negotiating intersections and blind spots as well as avoiding erratic drivers, pedestrians, animals, and parked vehicles. You'll also learn about driving with limited visibility and in slippery conditions. Paying extra attention to common driving hazards can help ensure that your passengers and cargo return home safely. | 0.25 | Intermediate |
| Supported Scaffold Safety | This course covers some of the more important OSHA requirements for supported scaffolds, as well as basic safe practices for working on or near these scaffolds. It is intended as an introductory or refresher course for construction and general industry workers who will be working on or near scaffold systems. | 0.5 | Intermediate |
| Arc Flash Safety | "An arc flash is a release of energy that instantly superheats the air and any nearby components, causing an explosion. Its a serious hazard when working on or near energized electrical equipment. OSHA requires that all employees understand the electrical hazards to which they are exposed. This course introduces the dangers of arc flash and presents common methods for preventing and protecting against those dangers, such as risk control hierarchy, safety boundaries, lockout/tagout, and PPE guidelines. Its based primarily on the National Fire Protection Association (NFPA) 70E Standard for Electrical Safety in the Workplace, which is the recognized industry resource in the United States for best electrical work practices." | 0.53 | Intermediate |
| Mold Awareness and Prevention | Mold is everywhere! Thousands of species of this type of fungus can be found growing year round, both indoors and outdoors, even in the most sterile of environments. Mold has a number of benefits, however it can also become a problem. Mold can destroy construction materials and also negatively impact peoples health. Knowing how to recognize mold, as well as how to clean it up and prevent it from recurring, is essential to a safe and healthy environment at work and at home. | 0.25 | Intermediate |
| Process Safety Management | Process Safety Management is the identification, evaluation, and prevention of highly hazardous chemical releases that could occur as a result of catastrophic failures in processes, procedures, or equipment. This course covers the components of the OSHA regulation in detail. | 0.5 | Intermediate |
| Compressed Gas Cylinder Safety | Prepare yourself and your team to work safely with and around compressed gas cylinders. This course describes compressed gas cylinders and how they are commonly used. Use this course to raise awareness about potential hazards and learn best practices for storage, transport, installation, and use of compressed gas cylinders. Missile hazards and types of compressed gases are also discussed. | 0.38 | Intermediate |
| Heat Stress Causes | Heat stress is a serious concern in many workplaces. Every year heat stress affects thousands of people, and some die as a result. This course provides the information you'll need to beat the heat and keep yourself and other workers safe. You'll learn about the different types of heat stress, from the least severe (heat rash) to the most severe (heat stroke). It will explain how the body reacts to heat, and the causes of heat stress. Finally, it will list some factors that affect how individuals tolerate heat. | 0.25 | Intermediate |
| Cold Stress | People who are exposed to cold or wet conditions sometimes can't keep their body warm, which leads to cold stress. This course discusses the factors that increase cold stress as well as what frostbite, trench foot, and hypothermia are and how they are treated. This course also illustrates safe work practices to help with the prevention of cold stress. | 0.38 | Intermediate |
| Turpentine Awareness | Turpentine, also called the spirit of turpentine, oil of turpentine, or wood turpentine, is a fluid obtained by distilling resin from pine trees and other coniferous trees. It is a colorless, volatile liquid with a strong odor. Turpentine is often used as a solvent or thinner for oil-based paints and varnishes. Working with or around turpentine is sometimes unavoidable, so it is critical that you use the proper PPE, follow standard procedures, and know how to handle leaks, spills, and other emergency situations. This course describes what turpentine is, its uses, the hazards it presents, and how to protect yourself from those hazards. | 0.25 | Intermediate |
| Chlorine Dioxide Awareness | This course will cover a description of chlorine dioxide, common uses of chlorine dioxide, PPE and handling requirements, exposure and toxicity, health hazards and effects, and emergency response procedures. | 0.25 | Intermediate |
| Job Hazard Analysis | This course provides basic guidelines for performing a job hazard analysis (JHA) in a variety of industrial workplaces. Based on industry best practices and OSHA guidelines, this course offers insights into why a JHA is a critical part of any safety program. From identifying common workplace hazards to accepted means of hazard control, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team. | 0.43 | Intermediate |
| Flammable and Combustible Liquids | This course provides important information on flammable and combustible liquids found in a variety of industrial workplaces. Based on OSHA standards, this course helps raise awareness of the potential hazards presented by common workplace products while offering practical instruction on labeling, storage, handling, and managing spills and waste to help establish safe work habits for yourself and your team. | 0.5 | Intermediate |
| NFPA 70E Introduction | NFPA 70E is the Standard for Electrical Safety in the Workplace. It establishes safe practices for protecting workers from two major electrical dangers, electric shock and arc flash. This course provides an introduction to NFPA 70E and summarizes some of its important electrical safety guidelines, including information on safety program components, risk assessment, risk control hierarchy, safety boundaries and some requirements for electrical equipment and devices. It also introduces PPE categories and incident energy analysis methods for determining personal protective equipment requirements. | 0.5 | Intermediate |
| Hand Washing and Hygiene | Each year in the U.S., food contamination leads to millions of illnesses and thousands of deaths. Salmonella poisoning, E. coli, Listeria, Hepatitis, and Norovirus can all be contracted by poor hand hygiene and can have potentially deadly consequences. Knowing proper hand hygiene techniques, the routes of hand contamination, the importance of the time spent washing the hands, and the difference between soaps and sanitizers will help keep you and your co-workers safe from the many food borne illnesses that surround us. | 0.25 | Intermediate |
| Back Injury Prevention | If you work with heavy loads or repeatedly twist to move materials from one location to another, you may be at a greater risk of back injury. Back injuries are suffered by more than one million workers every year, account for twenty percent of all workplace injuries, and cost companies billions of dollars. This course will help prevent back injuries at your workplace by raising awareness about the common causes of acute and cumulative back injuries, signs and symptoms of back injuries, and the engineering and administrative controls that can be implemented to prevent back injuries. | 0.38 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Blocking and Cribbing for Heavy Equipment | Blocking and cribbing is a phrase which describes a variety of procedures used to stabilize heavy equipment, or large components of heavy equipment, during maintenance. Blocking refers to any of a number of methods for securing a machine, or part of a machine, while it is being worked on. Cribbing refers to the technique of stacking a group of uniform blocks to create a temporary, but sturdy, elevated structure capable of supporting a heavy load. This course describes equipment and guidelines for successful blocking and cribbing operations. | 0.35 | Intermediate |
| Safety Showers and Eye Washes | Chemicals are frequently used and stored in industrial environments. It is imperative to handle them with care and wear appropriate PPE to avoid exposure. If an accident does occur, however, safety showers and eye washes can be used to cleanse the affected area and decrease the extent of injury. Knowing use procedures, maintenance practices, and the locations of safety showers and eye washes will reduce the risk of serious injury and lead to safer conditions in the workplace. | 0.5 | Intermediate |
| Tanker Rollover | Approximately 1300 tanker truck rollovers occur every year. These rollovers are the reason behind one in four accident-related truck driver deaths. This course emphasizes the importance of drivers paying close attention to the road and its conditions, as well as how their behaviors and decisions can factor in a rollover. | 0.25 | Intermediate |
| Conveyor Safety | Conveyors are involved in about 50 deaths in the U.S. every year. When used properly, conveyors can reduce workloads, make production more efficient, and prevent injuries that result from carrying materials manually. This course will discuss the most common types of conveyors and their hazards, the types of guarding around conveyors, general conveyor safety, and what to do during and after an emergency. Taking this course and understanding the hazards conveyors present will help keep you and your co-workers safe. | 0.5 | Intermediate |
| Spill Prevention, Control, and Countermeasures | When oil is spilled, it can endanger public health and the environment, as well as cost millions of dollars in clean up and disposal. To prevent oil contamination of navigable waterways and adjoining shorelines, the U.S. Environmental Protection Agency created the Spill Prevention, Control, and Countermeasure rule. Having a spill prevention plan in place is among the most effective and efficient tools in preventing environmental contamination. This course will discuss spill-related pollution, spill prevention techniques, appropriate procedures for controlling a spill in the event that one occurs, and countermeasure techniques that can be taken to help comply with federal regulations. | 0.5 | Intermediate |
| Trenching and Excavation Soil Properties | This course covers the importance of soil properties and classifications when engaging in excavation work. It is meant to be used as an introductory or refresher course for construction workers who will be digging or working in excavations. It is based on OSHA excavation regulations and on recognized best practices. | 0.25 | Intermediate |
| Ergonomics for Industrial Environments | Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in industrial environments, including engineering and administrative controls as well as motion-based, physical, environmental, and psychological risk factors associated with MSDs. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience. | 0.5 | Intermediate |
| Overhead Crane Operational Safety | The importance of the load capacity for an overhead crane and rigging; effect of sling angle; safe procedures for lifting, moving, and setting down a load; safe procedures for operating a crane near people; and importance of personal protective equipment. | 0.25 | Intermediate |
| Overhead Crane Basics | Components and functions of overhead cranes, function of rigging and slings, and common pre-use safety inspections for cranes and rigging. | 0.25 | Intermediate |
| Confined Space Entry - Permit Required | A confined space is defined as a work area which has sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. Working in a confined space can present hazardous atmospheres and physical dangers to employees. There are two types of confined spaces: Non-permit Required Confined Spaces and Permit-required Confined Spaces. This course will describe the dangers, best practices, and permit requirements necessary when working in a permit-required confined space. | 0.67 | Intermediate |
| Lockout Tagout for Affected Employees | Lockout/tagout can be defined as the placement of a lock or tag on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be re-energized until the locking device is removed. While an authorized person usually performs the lockout, an "affected employee" is an employee that is affected by the lockout. This course will focus on the general awareness needed for these "affected employees." | 0.3 | Intermediate |
| Wire Rope Basics | Wire ropes are used on machines that lift and move heavy loads because they are strong, durable, and resistant to abrasion. They are commonly used in many industrial applications such as wire rope slings, derricks, cranes, hoists, and many more. In this course, you will learn about the basic construction of a wire rope as well as the different core types, strand materials, and rope finishes available for wire ropes. You will also learn the meaning of lay and about different lay types. This course ends with a description of the different construction types, wire rope design compromises, and a wire ropes maximum working load. | 0.5 | Intermediate |
| Bloodborne Pathogens for Schools | "Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In an active school environment, younger children are going to get cuts and scrapes as they participate in physical activities. Older students are going to be involved in accidents, fighting, and even drug use. All of these activities present the risk to school staff members of exposure to blood and bloodborne pathogens. This course will cover some of the dangers to staff members posed by exposure to bloodborne pathogens, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids." | 0.5 | Intermediate |
| Bloodborne Pathogens for Hospitality | "Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In the hospitality industry, which includes hotels and motels, employees may come into contact with blood or other possibly infectious bodily fluids. This can happen when cleaning rooms, stripping beds, and handling laundry. Given the risk of exposure to bloodborne pathogens, this course will cover how workers can recognize the dangers of possible infection, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids." | 0.5 | Intermediate |
| Wire Rope Safety and Operation | Wire ropes are used on machines that lift and move heavy loads. Because of the potentially high loading on wire ropes, they can be one of the most dangerous pieces of equipment at a worksite. In this course, you will learn which personal protective equipment to wear while using wire ropes, safety guidelines for working with wire ropes, and how to recognize potential wire rope hazards. Because of the potential for accidents, knowing how to properly use and safely work around wire ropes is crucial to your safety and the safety of your co-workers. | 0.25 | Intermediate |
| Hazard Communication GHS | Many workplaces use hazardous chemicals. But, its not always easy to understand the various labeling requirements for these chemicals and the information provided to employees about the hazards these chemicals present. Concern and confusion about these issues increased when OSHA updated its Hazard Communication Standard in 2012 so HazCom would more closely align with the Globally Harmonized System (GHS). This course provides an overview of the key issues covered in the Hazard Communication Standard, including the 2012 revision to align with GHS, and provides the information that employees need to know about the labeling of hazardous chemicals in all parts of their product cycle. | 0.5 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Equipment Hazard Basics | Equipment in the workplace causes many incidents every year. Hazards exist where there is a risk of human contact with a machine's moving parts. Movement can occur at startup, during operation, or while a machine is stopping. Many incidents occur due to malfunctioning or missing machine guarding, or to workers taking shortcuts. It is important to know the types of hazards that equipment typically creates in order to avoid incidents. This course will cover common types of hazards associated with equipment, as well as how to identify and avoid these hazards. | 0.25 | Intermediate |
| Heavy Equipment Safety Introduction | Heavy construction equipment is extremely productive. The size and power of these machines however, presents a degree of risk to the men and women who operate and work around them. This course will cover the basics for remaining safe around heavy equipment as well as some specific concepts and guidelines for you to follow when working with and around heavy construction equipment. | 0.75 | Intermediate |
| DOT HAZMAT - Safety Training | "Over 4 billion tons of hazardous materials are transported in the U.S. every year. Due to their inherent risks to life, property, and the environment, the U.S. DOT established the Hazardous Materials Regulations (HMR) to cover the classification, labeling, packaging, and handling of hazardous materials. They also regulate hazmat training, incident reporting, hazard communication, and security. This course describes existing regulations for the transport of hazardous materials in commerce in the U.S., including the Hazardous Materials Table (HMT)." | 0.5 | Intermediate |
| First Aid - Sprains and Strains | Sprains and strains aren't the most serious injury a person can experience at work, but they are among the most common. This course explains what sprains and strains are, explains the RICE method for training sprains and strains, and gives tips on when a person with a strain or sprain should seek additional medical care. | 0.25 | Intermediate |
| Safety Management: OSHA Record keeping | In the workplace, employees may be confronted with a variety of injury and illness cases. When these occur, employees will need to determine or help determine whether or not a case should be recorded on the OSHA 300 Log for their facility. Injury records are kept to help analyze injury causes, identify potential trends, and prevent future occurrences. Failure to properly record an injury or illness may also result in an OSHA violation and citation. Thus, it is extremely important to know and understand the OSHA rules and requirements for recording an injury or illness. This course will review the criteria for recording injuries and illnesses for OSHA purposes. | 0.75 | Intermediate |
| Behavior-Based Safety | Behavior-based safety, or BBS, is an approach to improving workplace safety by focusing on what workers do and why they do it, and then applying strategies to promote safe behaviors in the future. It is based on the belief that human behaviors contribute in some way to many or most accidents. BBS cannot comprise a safety program all by itself. Rather, it is a tool that can be used along with other tools to create an effective workplace safety program. | 0.5 | Intermediate |
| Flu Awareness | According to the Centers for Disease Control and Prevention, or CDC, 25-50 million Americans get the flu each year. Of those, about 500,000 are hospitalized due to complications. There are tens of thousands of flu-associated deaths each year as well. It is essential for everyone to know how to recognize the symptoms of the flu, as well as how to treat it, when to go to the doctor, and how to prevent from getting it again. | 0.33 | Intermediate |
| Anhydrous Ammonia Awareness | Anhydrous ammonia is a chemical compound composed of nitrogen and hydrogen that has been liquefied and compressed into a gas. It is used as fertilizer, in power plants, and as a refrigerant. This course describes what anhydrous ammonia is and how it is used in general industry. This course also discusses the permissible exposure limits of anhydrous ammonia, the personal protective equipment that should be worn when working with or around anhydrous ammonia, handling precautions, as well as emergency response procedures. | 0.25 | Intermediate |
| Welding Safety | Welding is a very effective workplace technique used to fuse or cut metal, though it is not without dangers. Knowing the hazards of welding and following the correct procedures will help prevent personal injury, fatalities, and property damage. This course will cover welding-specific personal protective equipment, arc and gas welding, brazing and soldering, as well as the hazards they present. Lastly, this course discusses safety procedures used to minimize the exposure to different welding hazards. | 0.5 | Intermediate |
| Steam Pipe Safety | Steam is used around the world in many different ways. In industrial environments, it is commonly used for power generation and in heating and drying applications. When used properly, steam is one of the cleanest, most efficient, and safest forms of energy in use. However, employees should be prepared and aware of the hazards present when working around steam pipes in order to avoid accidents and injuries. This course describes the hazards presented by steam pipes, how to prevent them, as well as how to properly inspect, insulate, and label steam pipes. | 0.5 | Intermediate |
| Crystalline Silica Awareness | "Crystalline silica is a form of silicon dioxide which occurs naturally in the Earth's crust. When it is broken up by high energy activities into small airborne respirable particles, it can cause serious health hazards when inhaled. The symptoms caused by inhalation may not be immediately apparent. It is critical that individuals working around crystalline silica are knowledgeable of its physical properties, understand its safety risks, and know how to effectively avoid exposure. With the proper protective measures, training, and PPE, exposure to respirable crystalline silica can be reduced to the point that it is no longer a health threat to those who must work around it." | 0.5 | Intermediate |
| Heavy Equipment Visibility | When operating heavy equipment, the driver's view is likely to be blocked in several directions. These "blind spots" can even obscure a person standing right next to the equipment. One wrong move and that person could be injured or even killed. But these incidents do not have to happen. This module will discuss how to safely operate and work around heavy equipment to avoid injuries. | 0.25 | Intermediate |
| Maintenance Safety | Industrial facilities rely heavily on complex equipment. To run efficiently and effectively, the equipment needs regular maintenance. However, performing maintenance can introduce many safety hazards. This course addresses best practices for safely maintaining and repairing equipment. | 0.67 | Intermediate |
| Lockout Tagout for Authorized Employees | Don't count on luck, count on the lock. Protect yourself and your team from unintentional exposure to all types of hidden energy with this course that describes hazardous energy types and energy control procedures, including preparation, shutdown, isolation, lockout, stored energy check, verification, and release of lockout. Additional topics include lockout hardware and administration of an Energy Control Program (ECP). This course is intended for the "authorized employees" who typically perform lockout/tagout procedures. | 0.47 | Intermediate |
| Confined Space Entry Awareness | A confined space is defined as a work area which has all of the following characteristics: sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. This course will provide general awareness on confined spaces, differentiate between a permit-required and non-permit required confined space, and describe the job roles and responsibilities involved in confined space entry. | 0.5 | Intermediate |
| RCRA - Introduction | The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage both hazardous and non-hazardous wastes to protect human health and the environment. RCRA subtitle C regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. This course covers hazardous waste identification, hazardous waste lists, codes, and characteristics, and the mixture rule. | 0.5 | Intermediate |
| RCRA - Generator, Container, and Tank Requirements | The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. This course covers the classifications of generators and their regulatory requirements, waste minimization, container management requirements, hazardous waste tanks, and air emission standards and controls. | 0.5 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| RCRA - Preparing for Transportation, Manifesting, and LDR | The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. Once a generator has accumulated hazardous waste, it needs to be treated and disposed of. This often requires transporting the waste off-site to a treatment or disposal facility. A hazardous waste generator's responsibility is to correctly classify, package, and label the hazardous waste so it can be easily identified and appropriately handled by the transporter, and delivered to the treatment, storage, or disposal facility (TSDF). This course covers preparation steps for transportation, hazardous waste training requirements, hazardous waste manifest, land disposal restrictions (LDR), and alternative treatment standards. | 0.5 | Intermediate |
| RCRA - Emergencies, Inspections, and Training | The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. The goal of the emergency preparedness and prevention standards is to minimize the potential of a hazardous waste release and the resulting affects to human health and the environment. This course covers the required equipment needed for emergency preparedness, contingency plans, emergency procedures, inspection requirements, frequency, and logs, as well as personal training requirements and documentation. | 0.5 | Intermediate |
| RCRA - Special Wastes and Other Requirements | "The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Some hazardous wastes can be safely recycled. Recycling is an excellent way to manage hazardous waste if it can be done legitimately because recycling can avoid environmental hazards and protect natural resources. Most hazardous waste that is recycled is still subject to the full hazardous waste regulations, but some materials are exempt or subject to special regulations. Recycling facilities are not subject to hazardous waste regulations except when storing in containers or tanks prior to recycling. Recycled materials fall into a special category of waste. The regulations for recycling hazardous waste depend on the material and the recycling process." | 0.5 | Intermediate |
| Truck Mounted Cranes | Cranes are important pieces of equipment that are carefully designed and manufactured. When used properly, cranes provide a safe way to lift objects, and truck mounted cranes can be especially useful because they are mobile. However, cranes can pose many safety hazards. Cranes can tip over or contact electrical power lines. There is also the potential for moving or falling objects to strike workers, which is the leading cause of crane-related fatalities. Operators must be properly trained and everyone on the jobsite should be familiar with truck mounted crane safety. This course will describe common truck mounted crane types and components. The main focus of the module will be on the safe operation of truck mounted cranes. | 0.5 | Intermediate |
| Working Over or Near Water | Working over or near water can expose workers to a range of hazards, including injuries from falls, hypothermia, and drowning. This course discusses best practices for working over or near water, including the proper use of common types of personal flotation devices (PFDs). This course also offers information on what to do in man overboard (MOB) situations, including survival tactics and recovery practices. | 0.47 | Intermediate |
| Commercial Explosives Safety | An explosion is a sudden, violent release of energy accompanied by the expansion of high-pressure gases. An explosive is any chemical compound, mixture, or device intended to create an explosion. This course discusses types of explosive materials and their UN (United Nations) hazard classifications. It reviews common explosion hazards as well as the recommended personal protective equipment. This course illustrates proper material handling, storage security, best practices for blasting operations, and explosives disposal. | 0.43 | Intermediate |
| Pneumatic Tool Safety | Pneumatic tools are powered by compressed air. Common air-powered hand tools include jack hammers, chipping hammers, wrenches, grinders, and nail guns. Some of these tools shoot or create projectiles which can cause bodily injury. Additionally, pneumatic tools produce ear-damaging noise and release atomized oil and water vapor into the air. This module describes pneumatic tools hazards and how to deal with them. | 0.25 | Intermediate |
| Electric Shock | Electrical appliances and machinery are found in virtually every home and workplace. While they are common and convenient, they can also be quite dangerous. Thousands of people are shocked every year. An average of 60 people die each year from electric shock from small appliances, power tools, and lighting equipment. Knowing how to reduce the risk of electric shock, as well as how to respond should an injury occur, is essential for everyone. | 0.5 | Intermediate |
| Chemical Unloading Basics | All personnel involved in bulk unloading of chemicals must be properly trained in general safety awareness, equipment function and emergency shut down, hazardous chemicals, personal protection measures, and security. This course will focus on some basic procedures and safety practices for unloading bulk liquid chemicals from tank trucks and railroad tank cars. Totes and drums will also be discussed. | 0.25 | Intermediate |
| Warehouse and Loading Dock Safety | Covers hazards and safety guidelines associated with warehouses and loading docks, including personal protective equipment (PPE), importance of housekeeping, mobile equipment, driving safety, fire extinguishers, and emergency procedures. | 0.5 | Intermediate |
| OSHA Electrical General Requirements | The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from electrical hazards. The Electrical General Requirements standard (29 CFR 1910.303) is one of OSHAs most frequently cited standards. Among these standards, this course covers requirements for listed and labeled equipment, proper use of flexible cords and cables, working space requirements, and effective electrical safety programs. | 0.5 | Intermediate |
| Personal Protective Equipment | Every day, someone decides to give up their sight, hearing, fingers, toes, or worse to save a few seconds of effort. Sure it can be inconvenient and uncomfortable, but using personal protective equipment (PPE) properly is better than many unfortunate alternatives. Use this course to educate yourself and your team on head protection, eye and face protection, hand protection, foot protection, respiratory protection, and hearing protection. | 0.67 | Intermediate |
| Hearing Conservation | Protect one of your most valuable senses with a better understanding of the anatomy of the ear, how sound works, how the ear interprets sound, the effects of noise on hearing, and annual audiometric testing. Learn how to avoid occupational hearing loss by choosing and using the right hearing protection for your job, such as ear muffs and ear plugs. | 0.67 | Intermediate |
| Fall Prevention and Protection - General Industry | Working at elevated heights presents a serious danger of falling. Falls can be caused by inattentiveness, slippery surfaces, working in awkward or out-of-balance positions, or insufficient training. This course highlights numerous methods of prevention and protection, including fall arrest systems, the equipment associated with fall prevention and protection systems, vertical and horizontal lifelines, as well as inspection and maintenance guidelines. This course also discusses associated topics such as the proper procedure for putting on a body harness, lifeline swing hazards, calculating fall space clearance, and harness suspension syndrome. | 1.05 | Intermediate |
| Asbestos Awareness | Dispel some of the common myths about asbestos by educating your team about Asbestos Containing Materials (ACM) and how to work safely around them. This course describes the most common types of asbestos as well as the hazards asbestos may present. It provides an overview of the history of asbestos use, exposure limits, detection, prevention, and regulation. It also covers some of the potential effects of long-term exposure including asbestosis, lung cancer, and mesothelioma. | 0.5 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Laser Safety | Lasers have become an integral part of society. Due to their ability to carry large amounts of data with little or no signal degradation over long distances, they are commonly used in fiber optic communication systems. Use this course to learn safe work practices around Light Amplification by Stimulated Emission of Radiation (LASERs). This course covers the theory of laser light, how lasers work, types of lasers, laser classifications, laser hazards, low-power laser hazards, and laser pointer safety guidelines. | 0.25 | Intermediate |
| Ladder Safety | Ladders are tools commonly used to gain access to higher levels that are otherwise unreachable. When maintained properly and used according to safety guidelines, they are a simple and effective tool. However, each year thousands of workers are either injured or killed in ladder related accidents. This course describes different types of ladders, as well as ladder construction, ladder selection, height requirements, weight capacity, hazardous conditions, inspections, ladder setup, safe practices when using ladders, storage, and maintenance. | 0.48 | Intermediate |
| Load Securement | The North American Cargo Securement Standard provides the basis for the rules and regulations covering load securement on motor vehicles in the United States and Canada. This standard was created because unsecured loads can cause loss of life and load, cargo and vehicle damage, and accidents with other vehicles. This course covers the purpose of load securement, preparing loads, methods of load securement (including tie-down assemblies), working load limits, tie-down types, and safety. | 0.5 | Intermediate |
| Portable Loading Ramps | Portable loading ramps, also called portable loading docks, forklift ramps, mobile ramps, or yard ramps, provide access to semi-trailers and boxcars from ground level. They can be used in places where permanent loading docks do not exist, such as farm fields or construction sites, or as a cost effective way to expand material handling capabilities. Portability provides the flexibility to load and unload trailers close to the storage location, which can significantly reduce transportation distances in large facilities. This course will cover the basic features and safe operating guidelines for portable loading ramps. | 0.25 | Intermediate |
| Driving Large Vehicles and Heavy Equipment | Vehicles on public roadways come in many different shapes and sizes. Most passenger vehicles  cars, vans, SUVs, and pickup trucks  have similar configurations and controls, and drivers of these vehicles understand their capabilities and limitations. However, drivers of large trucks and heavy equipment must use extra caution in order to safely navigate and share the roads with smaller vehicles. This course covers some of the things that must be considered when driving large vehicles or operating heavy equipment in order to ensure the safety of operators and people who are nearby. Topics covered include blind spot awareness, how to safely back up, dealing with inclement weather and poor road conditions, construction and work zone considerations, and minimizing in-cab distractions. | 0.25 | Intermediate |
| OSHA Electrical Wiring Methods | The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from hazards such as electric shock, electrocution, fires, and explosions. The Electrical Wiring Methods standard (29 CFR 1910.305) is one of OSHAs most frequently cited standards. This standard covers wiring methods, components, and equipment for general use. This course will address some of the frequently cited requirements and provide some examples to help clarify the standard. | 0.5 | Intermediate |
| Stormwater Pollution Prevention | Stormwater runoff is the result of precipitation created by rain or snowmelt flowing over any exposed surface, such as equipment, roofs, roads, and pastures. As the water flows over urbanized and industrial areas it has the potential to pick up a number of contaminants like oil, sediment, chemicals, and litter. This water is then transported to nearby waterways. Polluted stormwater draining from urbanized areas is one of the leading causes of water pollution in lakes, streams, and oceans. This course describes the legal provisions related to stormwater pollution prevention as well as structural and operational best management practices at facilities. | 0.5 | Intermediate |
| Metal on Metal Safety | When working on heavy construction equipment, there are often situations when you have the need to strike a metal component of a machine with a hammer. Most hammers have hardened steel heads, and there is a hidden danger in striking two hardened metal surfaces together. This action can lead to sharp pieces of metal breaking out of the hammer or the struck piece of metal at very high velocity. This course will describe why this happens and what can be done to minimize the danger and protect yourself from injury. | 0.25 | Intermediate |
| First Aid - Initial Steps | Its not always clear what to do in a situation that requires first aid. Especially if its an emergency situation. This course spells it out, providing guidelines for what to do in an emergency first aid situation, and the order in which to do them. The course introduces a method called DR. ABC that stands for looking for danger before responding; checking to see if the victim is responsive; checking to see if the victims airway is clear; checking to see if the victim is breathing; and checking to see if the victims circulatory system is working. The course also explains the purpose (and limits) of emergency first aid, and the importance of summoning emergency medical assistance. Finally, it provides some general legal information about providing first aid. | 0.53 | Intermediate |
| First Aid - Automated External Defibrillator (AED) | In some first aid situations, the victims heart will be beating too quickly or in an irregular manner. In cases like these, an automated external defibrillator, also known as an AED, can be used to shock the persons heart back into a normal rhythm. In this course, you'll learn when and how to use an AED, including an automatic AED and a semi-automatic AED. | 0.53 | Intermediate |
| First Aid - Cardiopulmonary Resuscitation (CPR) | If a persons not breathing and their heart is not beating, they can die or suffer permanent brain damage very quickly. In situations like this, its important to know how to perform cardiopulmonary resuscitation, or CPR. This course explains when and how to perform cardiopulmonary resuscitation. The proper process for providing Hands-Only CPR is also explained. | 0.25 | Intermediate |
| First Aid - Heart Attacks and Cardiac Arrest | Heart attacks and cardiac arrest are both health emergencies involving the heart. They are relatively common in America and they can lead to death if the person doesn't get rapid first aid followed up by prompt medical care. This course explains what heart attacks and cardiac arrest are, how to recognize their symptoms, how to provide first aid, and the importance of summoning additional medical care for people suffering heart attacks and cardiac arrest. | 0.25 | Intermediate |
| First Aid - Shock | When a person goes into shock, it can be a very serious and even fatal health situation. As a result, this course will explain some reasons people go into shock, list some symptoms of shock, explain first aid to provide to someone in shock, and note the importance of calling for qualified medical assistance to aid someone in shock. | 0.25 | Intermediate |
| First Aid - Breathing Emergencies | People can have difficulty breathing for many reasons; these can be universally referred to as breathing emergencies. Breathing emergencies can be caused by choking, a punctured lung, an allergic reaction, exposure to chemicals or other toxins, asthma, and other causes. In this course you'll learn more about the causes of breathing emergencies, symptoms of breathing emergencies, how to provide first aid, and you'll get guidance on calling for emergency medical assistance. | 0.25 | Intermediate |
| First Aid - Stroke | A stroke is a serious medical issue requiring emergency medical assistance. This course explains some causes and types of strokes, lists common stroke symptoms, introduces the American Stroke Associations F.A.S.T. method for identifying stroke symptoms and calling for first aid, and provides first aid procedures. | 0.25 | Intermediate |
| First Aid - Bleeding Emergencies | There are certain cases when a person is bleeding that are always emergencies. These include extreme blood loss, amputations, abdominal evisceration wounds, sucking chest wounds, and internal bleeding. This course explains the importance of calling for emergency medical assistance in these situations and lists the appropriate steps of first aid to provide. | 0.5 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| First Aid - Head, Neck, Back, and Spine Injuries | Injuries to the head, neck, back, or spine can be especially dangerous because they can involve damage to the brain or spine, leading to death or permanent paralysis. This course describes the potential severity of these injuries, lists some tips for recognizing potentially serious injuries to the head, neck, back, or spine, and provides first aid tips for these situations. | 0.25 | Intermediate |
| First Aid - Seizures | A seizure is caused when there is sudden, abnormal electrical activity in the brain. Causes of seizures include diseases, such as epilepsy, brain injuries, fever, and reactions to drugs. Although most seizures are brief and cause no lasting harm, some seizures may be prolonged, presenting both immediate danger and long-term effects. In this course, you'll learn about the symptoms and causes of seizures as well as first aid to provide a person experiencing a seizure. | 0.25 | Intermediate |
| First Aid - Poisoning | The word poison is a general term used to describe a substance that can cause illness or death. Poisons can include many things, including medicines, drugs, household products, workplace chemicals, plant and animal toxins, and gases. Poisons can be ingested, inhaled, injected, or absorbed into the body. This course explains what poisons are, lists some common poisons, gives tips for preventing exposure to poisons, explains the importance of contacting a Poison Control Center in the event of a poisoning, and explains first aid procedures for poison exposures. | 0.25 | Intermediate |
| First Aid - Alcohol and Drug Overdose | Alcohol and drug overdoses are serious situations at work. They can lead to poor job performance, workplace violence, severe injuries, and even death. In this course, you'll learn some common types of drugs that can be overdosed on, symptoms of alcohol and drug overdoses, best practices for interacting with someone who's overdosed on alcohol or drugs, and first aid to help the person who's overdosed. | 0.25 | Intermediate |
| First Aid - Diabetic Emergencies | Diabetes is a disease that is becoming increasingly more common in the United States and in other parts of the world. As a result, the chances that you or a coworker may suffer from a diabetes-related health emergency have increased as well. In this course, you'll get a basic idea of what diabetes is, learn how to recognize symptoms of a diabetes-related health crisis, and will learn some tips for providing first aid to a person suffering from a diabetic emergency, including both high blood sugar (hyperglycemia) and low blood sugar (hypoglycemia). | 0.5 | Intermediate |
| First Aid - Head Injuries and Concussions | Head injuries are common at work. In some cases, they can be quite minor, but in others, they can be very serious or even deadly. In this course, you'll learn some tips for avoiding head injuries, how to recognize a concussion, how to provide first aid for minor and more serious head injuries, and how to provide first aid if the person has lost consciousness. | 0.27 | Intermediate |
| First Aid - Eye Injuries | A persons eye can be injured easily while on the job. As a result, safety glasses or similar eye and face protection is important when appropriate. In addition, however, workers should know how to provide first aid for eye injuries suffered at work. This course covers first aid for eye injuries from chemicals, cuts and scratches, and for objects embedded in the eye, and provides general procedures for using safety showers and safety eyewashes. | 0.25 | Intermediate |
| First Aid - Burns | Burns are a common occurrence in life, including at work. These may be something as simple as a sunburn or as frightening as a radiation burn. Burns are generally discussed in terms of their severity first degree, second degree, and third degree. In this course, you'll learn how to prevent burns from occurring at work, how to recognize the degree of a burn, how to provide first aid for different degrees of burns, and how to provide first aid for special types of burns, including electrical burns, burns from chemical spills, and thermal (heat) burns. | 0.5 | Intermediate |
| First Aid - Broken Bones and Dislocations | Broken and dislocated bones are a common injury in all walks of life, including at the workplace. By following safe work practices, properly guarding hazards, and wearing appropriate PPE, these injuries can be avoided. However, in some cases, broken bones will still occur. In this course you'll learn some different types of broken bones and dislocations and how to provide first aid for them. You'll also get some guidelines for when its necessary to summon emergency medical assistance to transport the person for additional medical care after first aid is provided. | 0.25 | Intermediate |
| First Aid - Snake Bites | Bites from snakes of any type can be hazardous and require first aid. This is especially true with bites from poisonous snakes. This course focuses on first aid for bites from the four most common poisonous snakes in the United States: rattlesnakes, water moccasins, coral snakes, and copperheads. Information focuses on snake identification, bite prevention, and proper first aid. | 0.25 | Intermediate |
| First Aid - Animal and Human Bites and Scratches | People can receive bites or scratches from small animals, larger animals including livestock and large predatory animals, and even other humans. All of these may be situations that require at least simple, basic first aid, and in some cases they may require additional emergency medical care. In this course, you'll learn the basics of what to do if someone is bitten or scratched by a small animal, livestock, a larger predatory animal, or another person. | 0.5 | Intermediate |
| First Aid - Dehydration | Dehydration can be a serious health concern and if severe enough, can even be fatal. This course explains ways to stay properly hydrated, explains how people get dehydrated and symptoms of dehydration, and explains first aid techniques for mild and severe dehydration. | 0.25 | Intermediate |
| Respirator Basics | Respirators are important and commonly used in the workplace. This course explains what a respirator is and the types of hazards for which they can provide protection. It also explains the difference between air-supplying and air-purifying respirators as well as tight-fitting and loose-fitting respirators. The use of respirators within the hierarchy of controls is covered, as are assigned protection factor (APF), selection criteria, and cleaning, maintaining, inspecting, and storing procedures. Finally, training and personal responsibility are covered. | 0.47 | Intermediate |
| Air-Supplying Respirators | Air-supplying respirators are one of two major classes of respirators (the other being air-purifying respirators). This course explains the basics of air-supplying respirators, including the three major types: self-contained breathing apparatuses, or SCBAs; supplied-air respirators (SARS), also called airline respirators; and combination respirators. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-supplying respirators. | 0.5 | Intermediate |
| Air-Purifying Respirators | Air-purifying respirators are one of two major classes of respirators (the other being air-supplying respirators). This course explains the basics of air-purifying respirators, including the three major types: single-use disposable respirators, also called dust masks; air-purifying respirators with a flexible, elastomeric quarter-mask, half-mask, or full-mask facepiece; and powered air-purifying respirators, or PAPRs. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-purifying respirators. | 0.5 | Intermediate |
| Respirator Medical Evaluation and Fit Testing | Before workers wear a respirator on the job, they must undergo a medical evaluation to see if they can wear the particular type of respirator safely. The medical evaluation looks for medical issues that might create a problem for the worker. In addition, after the medical evaluation, the worker should undergo a fit test to make sure the respirator fits properly and creates a tight seal. This course explains the medical evaluation and fit test in more detail. | 0.4 | Intermediate |
| Escape Respirators and SCSRs | A respirator is a piece of personal protective equipment that guards the user against hazards in the air. There are many types of respirators and each type protects its user from a specific airborne hazard. Escape respirators allow a person who works in a normally safe environment enough time to escape if a respiratory hazard suddenly occurs. This course will discuss the different types of hazardous atmospheres that require escape respirators, how to select, inspect, and put on a self-contained self-rescuer, also called an SCSR, as well as how to use an SCSR. | 0.53 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Work Zone Safety | A work zone is an area of roadway associated with construction, maintenance, or utility work activities. Work zones are typically marked by signs, channeling devices, pavement markings, and/or work vehicles. Because they are often adjacent to active roadways, work zone workers are exposed to significant risks. Motorists, cyclists, and pedestrians can also face significant risks. Roadways and work activities differ, and weather, traffic volumes, and local environments also vary, so a "one size fits" all approach to work zone safety is not appropriate. However, there are policies, procedures, and guidelines which do apply to all. These are covered in this course. | 0.5 | Intermediate |
| Steel Erection Safety | Steel erection involves assembling and connecting steel beams to form a structural frame for buildings and bridges. There are many obvious hazards associated with lifting large, heavy steel members and working at heights. According to the United States Bureau of Labor Statistics, an average of 15 ironworkers die each year in work related accidents. Precautions should be taken to prevent injuries during the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. This module provides hazard awareness information to prevent the most common incidents. | 0.5 | Intermediate |
| Safety Management: Incident Investigation | As long as people work, there will be safety-related incidents and near misses. But those incidents can be used to make the workplace safer if they are investigated, analyzed, and corrected to prevent their recurrence. This course discusses reasons for incident investigations, the phases of an incident investigation, team leader responsibilities, and who comprises the investigation team. It then provides information on best practices for interviewing witnesses, determining the root cause of an incident, and corrective and follow-up actions. | 0.5 | Intermediate |
| Hand Safety | Imagine performing daily activities such as writing, driving a car, or using a phone without your hands. Because hands are used so frequently, hand safety can be taken for granted. The construction and manufacturing industries pose a particular risk to the hands due to the size and complexity of the equipment and machinery present. This course will provide general hand safety awareness and discuss techniques for avoiding common hand injuries. | 0.25 | Intermediate |
| Slips, Trips, and Falls | Falling at work may not seem very dangerous, but falls are the leading cause of workplace injuries. They commonly cause cuts, bruises, broken bones, back injuries, sprains, and strains. Hazards that cause slips, trips, and falls can be controlled and eliminated if they are identified, reported, and corrected. This course describes common causes of slips, trips, and falls, how they can be prevented, and first aid procedures for fall injuries. | 0.48 | Intermediate |
| First Aid - Spider Bites | Spider bites are typically minor issues, but they can be more serious. And that's especially true in the U.S. if the spider is a black widow, a brown recluse, or a hobo spider. In this course, you'll learn basic first aid for minor spider bites. In addition, you'll learn what black widows, brown recluses, and hobo spiders look like; where in the U.S. they tend to live; the kind of areas they're commonly found in; why they tend to bite and how to avoid their bites; proper PPE to wear when in an area they may live in; symptoms of their bites; first aid for their bites; and the importance of calling for qualified medical care if one of these three spiders has bitten someone. | 0.25 | Intermediate |
| First Aid - Unconsciousness | People can lose consciousness for many reasons. This course explains some of the most common reasons, explains the importance of calling for qualified medical assistance, and gives tips for providing first aid. | 0.25 | Intermediate |
| Safety Management: Medical and Exposure Records Access | The Occupational Safety and Health Administration (OSHA) requires employers to provide a safe workplace for their employees. To ensure this, OSHA maintains several standards that describe employee rights for a hazard-free workplace. The Access to Medical and Exposure Records Standard (29 CFR 1910.1020) describes employees rights to access their medical records and information about exposure to toxic substances and harmful physical agents. This module describes employees right of access, what types of records they have access to, and record retention requirements for employers. | 0.25 | Intermediate |
| Universal Waste Storage and Handling | There are four main categories of universal waste: batteries, lamps, pesticides, and mercury-containing equipment. These special categories of hazardous wastes are meant to reduce the management burden and facilitate the recycling of universal wastes. This course will cover storage, container labeling, handling, and spill cleanup procedures for universal wastes. | 0.5 | Intermediate |
| Pollution Prevention Best Practices | Pollution is the contamination of the environment by substances that harm plants, animals, people, or natural resources. Most people are familiar with the three major forms of pollution: air, water, and land. Polluting these natural resources has both local and global impacts. This course describes ways to identify and reduce pollution at its source. | 0.5 | Intermediate |
| SPCC Inspections | The purpose of the EPAs Spill Prevention, Control, and Countermeasure rule is to prevent oil contamination of navigable waterways and adjoining shorelines. Facilities which store or handle sufficient quantities of oil are required to create an SPCC plan, which includes inspection and testing procedures and schedules. The purpose of SPCC inspections is to prevent oil discharges due to container and equipment failures. Personnel conducting the inspections are trained to look for signs of corrosion, leaks, brittle fracture, overflows, and other problems. | 0.5 | Intermediate |
| SPCC Run-On and Runoff | The purpose of the EPAs SPCC rule is to prevent oil contamination of navigable waters and adjoining shorelines. Facilities which store or handle large quantities of oil are required to create an SPCC plan whose purpose is to prevent, control, and deal with oil discharges. One way these facilities can unintentionally discharge oil to waterways is with runoff. To prevent this, they can prevent run-on from reaching equipment with the potential for oil discharges, and also prevent oil-containing runoff from leaving the facility. This course describes the containment measures that can be used to accomplish these goals. | 0.5 | Intermediate |
| Construction Site Stormwater Runoff Control | Construction site activities often disturb or expose soil, which can increase erosion and cause sediment to be picked up and carried off by stormwater runoff. If not controlled, this sediment and other pollutants at construction sites can be carried away and deposited in nearby wetlands, waterways, and fragile habitats. This can harm aquatic plants, fish, and wildlife, and degrade water quality for municipal, industrial, and recreational uses. In the U.S., operators of large construction sites are often required to obtain stormwater discharge permits from the EPA, the state, or local authorities. To begin this process, you must create and implement a stormwater pollution prevention plan (SWPPP). | 0.5 | Intermediate |
| SPCC Secondary Containment | At facilities regulated by the SPCC Rule, all containers, equipment, and areas with the potential for oil discharges are subject to secondary containment requirements. Affected equipment and areas must have appropriate containment that is able to contain the most likely quantity of oil that would be discharged until it can be cleaned up. The original containers, equipment, and piping serve as the primary containment, while the secondary containment serves as backup protection against spills, leaks, and primary containment failures. This course describes the secondary containment that can be used to prevent oil discharges. | 0.5 | Intermediate |
| Safety Management: Near Miss Best Practices | The Occupational Safety and Health Administration (OSHA) has described near misses as incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred. It has been shown that injury and damage-producing events are frequently preceded by warning signs or near miss incidents. For this reason, a program designed to identify, record, and address near miss incidents will improve worker safety and the safety culture of an organization. | 0.25 | Intermediate |
| Pressure Washing Best Management Practices | Pressure washing generally refers to the practice of using water sprayed through a nozzle at high pressure to clean or strip material from various surfaces. This technique typically produces contaminated wastewater that can flow into a nearby waterway without proper intervention. This course describes pressure washing best practices and steps to take to avoid polluting open water. | 0.5 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Volatile Solvent Spill Response | "Spills involving volatile solvents are a unique class of spills. This is due to the fact that in addition to any damage and pollution directly caused by the spilled liquid, evaporation of a volatile solvent will contaminate the air in the vicinity with the gaseous form of the liquid.<br>Because the vapors from most volatile solvents are flammable and toxic to some degree, the response to this type of spill must take the presence of the vapor into consideration." | 0.25 | Intermediate |
| Safety Management: Floor and Walkway Safety and Auditing | Slips, trips, and falls (or STFs) are a leading cause of work-related injuries, including sprains, strains, fractures, contusions, and abrasions. STFs also account for 15% of all accidental deaths; second only to motorized vehicles as a cause of workplace fatalities. STFs also account for ~15% of workplace fatalities, second only to those related to motorized vehicles. While STFs can occur on level surfaces and at elevated heights, this course focuses only on STFs which occur on level surfaces. | 0.5 | Intermediate |
| Safety Management: Slip, Trip, and Fall Prevention Inspections | Slips, trips, and falls (STFs) are a leading cause of work-related injuries, and the second leading cause of workplace fatalities, after motorized vehicle incidents. A comprehensive floor and walkway safety program can greatly reduce STF hazards and incidents. Among other things, this program should include floor and walkway audits and STF prevention inspections performed by trained and qualified persons. STF prevention inspections should include annual inspections, routine safety inspections, and change analyses. | 0.5 | Intermediate |
| Above ground Storage Tank Requirements (AST) | Any storage container of at least 55 gallons that is completely above ground, partially buried (<10%), or located in a bunker or subterranean vault is considered an above ground storage tank, or AST. The majority of storage tanks hold petroleum products, so ASTs pose a significant threat to the environment. To prevent leaks, ASTs are regulated by the Spill Prevention, Control, and Countermeasures (SPCC) rule. This course will summarize the SPCC regulations that apply to above ground storage tanks. | 0.5 | Intermediate |
| Underground Storage Tank Requirements (UST) | "Any tank, and associated underground piping, with at least 10% of its volume underground is considered an underground storage tank (UST). Until the 1980s, most USTs were made of bare steel, which easily corroded. This allowed the tank contents to leak into the environment and contaminate soil and groundwater. So, beginning in 1984, Congress passed a series of laws to address leaking underground storage tanks that contain petroleum or other hazardous substances. The federal UST program sets minimum operating requirements and technical standards for tank design and installation, spill and overfill control, leak detection and response, and corrective actions. This course will summarize underground storage tank regulations." | 0.5 | Intermediate |
| Bioremediation Tactics | "Bioremediation refers to a set of processes which involve the use of living things to break down hazardous substances in the environment into less toxic or non-toxic substances and restore contaminated soil or water to its original unpolluted state. There are many methodologies which fall into the category of bioremediation. All involve living organisms. Some work by stimulating or enhancing the inclination of certain microorganisms to break down undesirable, polluting substances. Other methods involve the use of fungi or plants to achieve the same purpose." | 0.5 | Intermediate |
| Hazardous Material Labeling | "People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). Hazardous material labeling is a key element of the HCS. This module will cover the labeling requirements of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and alternative workplace labeling options." | 0.5 | Intermediate |
| Hazardous Material Classifications | To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). The Hazard Communication Final Rule (HazCom 2012) is aligned with the Globally Harmonized System of Classification and Labeling of Chemicals, or GHS, which provides standard criteria for determining chemical hazards to ensure different manufacturers and importers classify hazards similarly. This module will focus on the hazard classes defined by HazCom 2012. | 0.5 | Intermediate |
| Hazardous Material Storage | People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. The risk of being exposed to a hazardous chemical is greatly reduced when the chemical is handled and stored according to manufacturer recommendations and in compliance with facility standards. This module will present best practices for the safe storage of hazardous chemicals. | 0.25 | Intermediate |
| Worker Right to Know (RTK) | Workers have the right to know and understand the hazards presented by the chemicals they use and how to work with them safely. Employers must maintain a list of all chemicals on site and provide employees with safety data sheets, which contain detailed information about the chemical and its hazards. This module is designed to ensure workers know what information should be provided to them and to help them understand that information. It describes the requirements of the Right to Know Standard and each section of a safety data sheet. | 0.5 | Intermediate |
| Storage and Handling of Corrosives | Corrosives are substances that damage or destroy other substances on contact. Most are strong acids, strong bases, or concentrated solutions of weak acids or weak bases. To safely store and handle corrosives, read the container labels and safety data sheets, and follow the requirements and precautions they contain. Also follow the storage and handling best practices for hazardous chemicals and corrosives for your workplace and listed in this course, and keep an accurate inventory at all times. | 0.5 | Intermediate |
| Storage and Handling of Pesticides | Pesticides are used in many different applications to prevent, destroy, repel, and mitigate pests. A pest can be any plant or animal that endangers our food supply, health, or comfort. Because pesticides are toxic, they are inherently hazardous. To avoid their potential hazards, always review and follow the recommendations and precautions listed on pesticide labels and in SDSs, and adhere to the best practices presented in this course, plus any that have been established for your workplace. | 0.5 | Intermediate |
| Storage and Handling of Category 1 and 2 Flammables | GHS Category 1 and 2 Flammable liquids have flash points below 73.4 F (23 C), which means that they produce vapors that can ignite and burn at normal working temperatures if an ignition source is present. Their ability to self-ignite and to explode under certain conditions make them particularly hazardous. To safely store and handle flammable liquids, read and understand their labels and safety data sheets, and follow the best practices and regulations included in this course and established for your worksite or location. | 0.5 | Intermediate |
| Storage and Handling of Category 3 and 4 Flammables | Category 3 and 4 flammables, previously identified as combustibles, have higher flash points than category 1 and 2 flammables, which means that they require higher temperatures to produce vapors that will ignite and burn if an ignition source is present. To safely store and handle combustible liquids, make sure you read and understand their labels and safety data sheets, and fully understand their hazards. Also follow the combustible liquid storage and handling best practices in this course and for your workplace. | 0.5 | Intermediate |
| Mechanical Power Press Safety | "A mechanical power press (MPP) is a machine that uses dies and pressure to shear, punch, form, and assemble metal or other material. They can develop up to several thousand tons of pressure, and the area where they perform work - the ""point of operation"" - poses a serious pinch point hazard. They also contain rotating component and in-running nip point hazards. The primary and secondary safeguards that are used on MPPs depend on several things. All safeguards must be inspected and tested on a regular basis to make sure that they function correctly and meet all current safety standards." | 0.5 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| First Aid - Scorpion Stings | Scorpions can be found throughout most of the United States. However, the only scorpion commonly thought to be dangerous to a healthy adult is the bark scorpion, which is typically found in the Southwest. In most cases, a scorpion sting calls for only some minor first aid and perhaps some rest. But bites from a bark scorpion, or bites to children, elderly, or ill people, may require additional first aid. This course explains first aid for a scorpion bite. It also explains where scorpions live and what they look like; gives tips for preventing scorpion bites; and explains the symptoms of scorpion bites. | 0.25 | Intermediate |
| First Aid - Fire Ant Bites and Stings | Fire ants are aggressive ants that sometimes bite and sting. This course explains where in the U.S. fire ants are most commonly found and, within those regions, the types of areas you're most likely to find them. It gives tips for bite/sting prevention, and discusses first aid procedures for bites and stings, including first aid for people who are allergic to the bites and stings. | 0.25 | Intermediate |
| First Aid - Flying Insect Stings | Flying insects, such as bees, wasps, hornets, yellow jackets, and even so-called killer bees are common throughout the United States. In most cases, they aren't aggressive and they don't seek to sting humans. However, when stings do occur, they're typically minor and require only limited first aid. In other cases, however, especially if the person who's stung is allergic to the sting, or if the person is stung many times, the situation can be quite severe or even potentially fatal. In this course, you'll learn how to avoid being stung by flying insects, what to do if someone has been stung and is having a mild reaction, and what to do in the event of a severe reaction to a flying insect sting, including what to do if the stung person is allergic. | 0.25 | Intermediate |
| First Aid - Tick Bites | Ticks are small insects commonly found in grassy areas pretty much everywhere in the United States. They bite people and suck their blood; while doing so, they can transmit many dangerous diseases to the person they're biting, with Lyme disease being the most notable. In this course, you'll learn what a tick looks like and where ticks live; how to avoid being bitten by a tick; how to inspect your body for ticks; how to remove a tick from your body if you have been bitten; first aid for tick bites; symptoms of tick bites and serious reactions to tick bites; and tips for seeking medical care after a tick bite. | 0.25 | Intermediate |
| Night Shift Safety | Night shift work can expose workers to a range of hazards, including sleep deprivation, limited visibility, and changing weather conditions. This course discusses what constitutes extended or unusual works shifts and the hazards associated with work pattern changes. The dangers of sleep deprivation, as well as nighttime weather hazards, are also explained along with nighttime work area lighting needs, operating mobile equipment at night, and the best practices for working outside at night. | 0.3 | Intermediate |
| Safety Management: Emergency Action Plans | This course covers the importance of creating emergency action plans in preparation for unexpected emergencies, accidents, and evacuations at industrial workplaces. Based on OSHA standards and recognized industry best practices, this course is intended as an introduction or refresher for general industry workers and those responsible for developing an emergency action plan. | 0.25 | Intermediate |
| Fire Safety | Every second counts in the event of a fire. In only 30 seconds, small flames can get out of control and turn into a major fire, which can lead to an injury or a fatality. In this course, you will learn about the nature of fire, preventative and protective measures, fire sprinklers, smoke detectors, alarms, fire extinguisher use, evacuation, the stop, drop, and roll procedure, and more. | 0.5 | Intermediate |
| Fire Extinguisher Safety | We see them hanging on the wall every day but most people know very little about fire extinguishers. Use this course to educate your team on the fire tetrahedron, the types of fires that can occur in the workplace, and how and when to use a fire extinguisher. This course also describes when to evacuate and provides some proper maintenance tips for fire extinguishers. | 0.73 | Intermediate |
| Shoulder Injury Prevention | In the U.S., shoulder injuries result in more days away from work than any other work-related injury. Many activities including reaching and lifting can strain the body and cause injuries to the back, neck, shoulders, and limbs. To prevent shoulder injuries, make sure equipment and controls are maintained and function correctly, follow safe work practices, use required PPE, don't overexert, maintain good posture, and stretch and take breaks regularly. It is also important to exercise and take care of yourself during non-work hours. | 0.5 | Intermediate |
| Mounting and Dismounting Heavy Equipment | Accessing the operator's cab on heavy equipment requires more physical activity than sitting down into a car or small truck. "Mounting" and "dismounting" often requires the use of access supports such as ladders, steps, and handholds. This course will cover some specific safety guidelines to prevent injuries during the mounting and dismounting of heavy equipment. | 0.25 | Intermediate |
| Safety Management: Root Cause Analysis | How many times have you thought a problem was "fixed" only to have it happen again? This happens when only the symptoms, not the underlying, or root, causes, are addressed. Root cause analysis is a generic term used to describe various methods that can be used to find and eliminate root causes so problems do not recur. This module will describe the steps involved in a root cause analysis and some tools and methods that can be used. | 0.25 | Intermediate |
| Safety Management: Safety Inspections and Observations | Accidents are caused by unsafe workplace conditions or unsafe behaviors. Inspections and observations allow you to be proactive by evaluating how safe your workplace is instead of waiting until someone gets hurt. This course will provide an overview and general guidelines for performing safety inspections and observations. | 0.25 | Intermediate |
| Safety Management: Root Causes of Human Behavior | Human errors occur quite frequently. To prevent recurrence of the same errors, careful analysis is required to identify and eliminate the root causes of those errors. However, determining the root causes of incidents caused by worker behaviors is typically more difficult than finding the root causes of mechanical failures. This module will describe some different models and analysis methods that can help identify root causes of human errors and behavior problems. | 0.5 | Intermediate |
| Safety Management: Events and Causal Factors Analysis | Accidents and major equipment failures are usually the result of several different failures or human errors occurring at the same time. This can make it difficult to analyze information and find root causes. A method such as events and causal factors analysis is useful because it organizes event data on a timeline, which provides a visual summary of an incident and makes it easy to identify relationships between relevant events and their causal factors. | 0.25 | Intermediate |
| Safety Management: Change Analysis | Change analysis, also known as Is/Is Not Analysis or KT (Kepner Tregoe) Analytical troubleshooting, is a problem solving method that involves comparing a process that has failed or is performing poorly to one that is operating correctly. This module describes how to conduct a change analysis. | 0.25 | Intermediate |
| Safety Management: Task Analysis | When an incident, or problem, appears to have resulted from a human error during the execution of a task, or procedure, a task analysis should be performed. The objective of a task analysis is to determine how a task was actually performed, compare that to how it should have been performed, and identify corrective actions that will increase the likelihood that it will be performed correctly in the future. This module describes the steps involved and how to perform a task analysis. | 0.25 | Intermediate |
| Safety Management: Barrier Analysis | "Every organization has policies regarding defenses, or barriers, to control hazardous energy and prevent it from coming into contact with people, or objects. For example, machine guarding keeps people from contacting moving equipment, and lockout/tagout procedures provide barriers to prevent equipment from moving when its being worked on. Accidents occur when barriers fail. Barrier analysis is used to determine which barriers failed and why, so it is an effective root cause analysis tool for accidents and other incidents. This module describes how to perform a barrier analysis." | 0.25 | Intermediate |
| Crane Hand Signals | Clear and consistent communication between a signal person and a crane operator is essential for safe crane operation. The use of standard hand signals will ensure there are no misunderstandings between the signal person and the crane operator. This module will cover standard hand signals that can be used for most crane operations. | 0.25 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| NPDES Wastewater Discharge Permits | "Water is a critical resource that must be protected to supply safe drinking water and support various activities, such as farming, manufacturing, and tourism. The federal Clean Water Act (CWA) protects ""waters of the United States"" (WOTUS). This training provides general guidance on what waters are considered WOTUS. With certain exceptions, the CWA prohibits the discharge of pollutants from a point source into waters of the United States without a National Pollution Discharge Elimination System (NPDES) permit. The requirements of this permit are also covered in this training course. " | 0.5 | Intermediate |
| Pallet Jack Safety | A pallet jack is a relatively simple device that allows a person to pick up and move a palletized load which can weigh several times that of the operator. A typical manual pallet jack consists of a small frame that supports two low forks that are designed to fit under a pallet. A handle, or tiller, connected to the frame provides a method to push or pull the jack, to steer it, and a way to hydraulically elevate the forks. This course will focus on the principles of operation and instructions for safe use of the manual type of pallet jack. | 0.25 | Intermediate |
| Active Shooter Response | An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers. | 0.25 | Intermediate |
| Process Safety Management (PSM): 1910.119 Overview and Auditing | "The OSHA 1910.119 Process Safety Management (PSM) regulation applies to many companies that use and process flammable liquids as well as hazardous chemicals. With 14 required elements - it's a very comprehensive and challenging regulation. The PSM regulation literally changes the way affected companies run their business. This course will show you how to develop an effective PSM Program as well as survive an OSHA PSM inspection." | 1 | Intermediate |
| Exit Routes, Emergency Action Plans & Fire Prevention Plans | A safe means of escape is crucial when it's necessary to quickly evacuate a building. This course will provide examples of some previous egress tragedies that well help you to understand critical means of egress requirements. You will learn how to develop an emergency action plan and a fire prevention plan that may be implemented in your facility so you can be ready if disaster strikes. | 1 | Fundamental |
| Process Safety Management (PSM): An Overview | This overview of PSM will provide a basic understanding of what PSM is and the topics that comprise it. PSM addresses Highly Hazardous Chemicals identified by OSHA and the process industries. These chemicals require safety considerations over and above normal chemicals. These safety considerations are the basis of PSM. Following course completion you will be able to identify key elements and what is and is not acceptable under PSM. | 1 | Intermediate |
| Process Safety Management (PSM): Process Hazard Analysis | Process Hazards Analysis (PHA) is best described as the building block for the successful PSM program. This course provides an overview of Process Hazards Analysis, acceptable methodologies and information required for PHAs. PHAs identify, evaluate, and control the hazards involved in the process. Priority of PHAs is determined by such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. This course is an introduction to PHAs and does teach how to conduct a Process Hazards Analysis. | 0.5 | Intermediate |
| Process Safety Management (PSM): Mechanical Integrity | Mechanical Integrity (MI) rivals Process Safety Information in complexity and receives the most OSHA citations. This is because MI addresses most of the equipment in a process and is therefore very broad. MI requires written procedures to maintain the integrity of process equipment and training for process overview, hazards and employee task procedures. Typically the most important task for Mechanical Integrity is equipment inspection and testing. This course offers a working knowledge of Mechanical Integrity and its many elements. | 0.5 | Intermediate |
| Process Safety Management (PSM): Management of Change | Uncontrolled change contributes to 80% of serious industrial accidents. Management of Change (MOC) requires written procedures to manage changes to process chemicals, technology, equipment, facilities and procedures that affect a covered process. Any potential change is evaluated for its impact on the process and all affected personnel will be informed and trained in the change prior to start-up of the process. In addition, any change requires all other elements of PSM to be updated to reflect the change. Lack of or an ineffective Management of Change Program is a ticking time bomb that will eventually explode. | 0.5 | Intermediate |
| Process Safety Management (PSM): Process Safety Information | Process Safety Information (PSI) identifies the many types of information necessary to convey an understanding of a PSM covered process. Process Safety Information is typically grouped into three topics: hazards, technology and equipment. The hazards of the process must be communicated to employees. The process technology of designing safe systems, safety components and devices help employees understand the safety built into the process. The key point of Process Safety Information is not to remember it, but to know where to find the information if needed. | 0.5 | Intermediate |
| Oil Spill Responses in Facilities | The environment and public health and safety are affected with every oil spill and facilities should work to mitigate their risk with a goal of zero oil discharge. By the end of this course, you will learn about the tools facilities can use to prevent, contain, control and if necessary cleanup after an oil spill. | 1 | Intermediate |
| Benzene: Safe Handling & Storage | This course will review the information required to safely handle benzene. Benzene is a flammable organic liquid that is classed as a potential human carcinogen. Training will discuss the production and use of benzene in manufacturing processes. The applicable regulatory requirements will be reviewed. The physical and chemical properties will be covered to help ensure safe handling practices. Potential exposure mechanisms, symptoms of exposure, and the use personal protective equipment are topics for consideration. The requirement for storage, handling, and transportation of benzene will be included in the training. | 1 | Intermediate |
| Ethylene Oxide Safety | This course will introduce and describe the characteristics and uses of ethylene oxide (EtO). It will also discuss the health hazards of ethylene oxide and how to protect yourself with the use of respirators and other personal protective equipment. OSHA regulations on ethylene oxide will be reviewed and will include information on exposure limits and monitoring; compliance; medical surveillance; and communication. Recommendations on engineering controls, work practices, and emergency response will be provided. | 1 | Intermediate |
| Hydrogen Fluoride Safety | HF acid is used throughout industry every day, and in most cases, without ill affect. However, it's important to talk about the potential hazards of HF acid as well as the safe work practices when working or handling HF acid. This course will introduce and describe the characteristics and uses of hydrogen fluoride (HF). It will discuss the signs, symptoms, and health effects of HF. Safe work practices and first aid procedures will also be discussed. | 1 | Fundamental |
| The Hazards of Oxygen and Oxygen Enrichment | This course will introduce and describe the characteristics of oxygen (O2). It will discuss the health hazards of O2 and how to detect oxygen deficient and oxygen enriched atmospheres. You will learn best work practices including handling and storage. | 1 | Intermediate |
| Triethylaluminium Safety Awareness | This course will introduce and describe the characteristics of Triethylaluminium (TEAL). It will discuss the health hazards of TEAL and how to reduce exposure through workplace controls as well as how to mitigate danger through safe work practices and proper PPE. | 1 | Intermediate |
| Nitrogen Safety Awareness | Nitrogen is used daily in the workplace without incident. However, serious incidents including fatalities can occur when nitrogen is present in a work environment, such as a confined space, and employees enter without awareness of the potential hazard. This course will teach you how to recognize hazards and take corrective action to protect yourself and others. | 1 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Safety Management | Managing safety is not just something that happens - it should be managed just as quality, productivity and customer-relations are managed. Senior management establishes the overall culture at every facility. This course will review the four major elements to achieve a world class safety and health program at your facility. | 1 | Intermediate |
| Gas Pipelines - Public Awareness | Gas pipeline safety is critical - not just for your employees but for public safety as well. Therefore, it is imperative that gas operators have an effective awareness program to inform the public; public officials; emergency responders; as well as excavators as to the location and safe work practices around gas pipelines and what to do in an emergency. This course details Title 49 CFR 195.440 and will help operators of both natural gas and hazardous liquid pipelines to develop and implement public awareness programs consistent with the regulations and API RP 1162. | 1 | Intermediate |
| Toxic Substance Control Act (TSCA) Compliance | With new chemicals and products being introduced into the marketplace on a daily basis, it is imperative that manufacturers properly identify and evaluate new products prior to being released for use. This course will discuss how the Environmental Protection Agency (EPA) regulates polychlorinated biphenyls (PCBs) use in the United States. In addition, this course will discuss compliance strategies based on the Toxic Substance Control Act's sections and titles. | 1 | Fundamental |
| R & D Waste Management | This course is structured to provide a general overview of waste streams that can be generated in a research and development (R & D) laboratory. Information is also provided concerning the federal regulatory agencies that oversee chemical waste in a research laboratory setting and applicable guidance from those agencies. In this interactive online course, you will learn that no matter how big or small your research laboratory, you should have a chemical hygiene plan in place to protect all laboratory personnel while they collect and handle hazardous wastes. The handling of hazardous wastes can present a physical and health hazard to laboratory workers in clinical, industrial and academic laboratories. This course will provide guidance on good work practices in the handling of the various wastes streams generated in a R & D laboratory. | 1 | Intermediate |
| R & D Chemical Hygiene | Significant injures, damage to facilities and disruption of work can occur when chemicals are not properly stored and handled. By the end of this course, you will learn about the hazards of working with chemicals in a Research and Development Laboratory. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! | "Welcome to Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! In this course we will cover the safety aspects of fuel and combustion systems. We will explore the gaps in the knowledge of people responsible for system safety. You will get instruction in developing safe environments, codes and standards, and the organizations that publish the codes. We will also review risk assessment and the insurance industry. You'll also receive information on the possibility of personal criminal liability. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Combustion Basics | "Welcome to Fuel and Combustion Systems Safety - Combustion Basics. In this course we lay a foundation for more complete technical understanding of fuel systems and combustion equipment. If you've been associated with this world, there may be little here that is new. If not, this is a course you may refer to over and over again in your career. The information in this course is out there in many forms and places. We will define combustion, review fuels, and explore the fire triangle. You'll get combustion chemistry and how to apply it to burner systems. We'll delve into environmental emission issues, basic burner design issues, and draft systems. We'll cover flames and instruct you in where to look and what to look for as well as fuel/air ratios evaluations. Throughout the course you will be given real-life stories so that you can see the practical applications for what you are learning. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. " | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Natural Gas Piping Basics | "Welcome to Fuel and Combustion Systems Safety - Natural Gas Piping Basics. Combustion systems start with fuel systems and fuel systems start with piping. By far the most common fuel burned throughout the world is natural gas. Natural gas use is growing even more in popularity as the United States develops shale gas deposits. For this reason the primary focus of this course is piping related to natural gas systems. Before we discuss advanced gas piping concepts it's important to review the basics. In this course we attempt to discuss the most basic natural gas related piping concepts starting with the piping itself, how it's made, and how it's installed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Gas Supply System Issues | "Welcome to Fuel and Combustion Systems Safety - Gas Supply System Issues. Once natural gas piping is inside a facility, it is pretty easy to look up, see it marked, and understand what it is. Many people don't quite understand how the gas might have gotten there. It's important to know where the gas came from, who owned it and at what point, how the pressure got controlled, and how to shut it all off if necessary. In this course we also discuss alternative fuel considerations, such as propane, landfill, or digester gas service issues. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning | Welcome to Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning. In this course we provide advanced concepts for facilitating the safe repair and cleaning of gas piping systems. Some of the most significant and horrific tragedies have come about from mistakes made in preparing gas piping for maintenance, bringing gas piping back into service, and trying to clean gas lines. The concepts presented in this course need to be made the subject of policies and practices with both designers and maintenance staffs. A section at the end of this course highlights a relatively new standard, NFPA 56, Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, which is central to this topic. It took many months of meetings with contributions from over a dozen experts to write NFPA 56. This is a very important and ground breaking piece of work that applies directly too many of the concepts presented in this course. Anyone who does or oversees activities related to gas line repairs and cleaning must become familiar with this standard. This course is not a design guide or a "how to" for gas line purging and cleaning. Each site and its circumstances and conditions are different, and nothing here should be seen as a replacement for sound engineering judgment and the requirements prescribed by applicable codes. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks | Welcome to Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks. The potential for catastrophes is much greater for boilers than for any other category of combustion equipment, because there is a twofold risk, fuels and saturated water/steam. Heating water in boilers or hot water heaters, is by far the single biggest application of heat energy and fuel trains on the planet. In the United States alone, a 2005 study indicated that there are over 163,000 commercial and industrial boilers. There are millions of residential boilers and hot water heaters as well. In this course we describe different boiler types and also provide insights into some of the hazards associated with steam systems, including safety relief valves and steam piping. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: People | "Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: People. This course focuses on one of the three key concepts found to form the basis of long-term sustainable fuel and combustion system safety: people, policies, and equipment. These are the three legs of a three-legged safety and risk management approach. Any successful program must contain elements of each to be successful. The "people" piece involving controlling human error is among the most important. Human error has been the leading cause of many fuel and combustion system accidents. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies | "Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies. There comes a time in the life of a fuels and combustion equipment safety and risk management program when thought must be provided to make things sustainable. The immediate fixes must become institutionalized. Knowledge-based practices need to become rule based. In this course 10 important concepts are summarized, reinforced, and framed in an approach for developing sustainable policies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment | "Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment It's intuitive that controlling equipment risks involves regular safety testing and maintenance of equipment. However, much of the safety and risk management of fuel-fired equipment needs to occur in the design and specification of equipment, along with its installation and commissioning. In this course we address these issues as well as ongoing safety device testing requirements. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Global Perspective on Fuel and Combustion System Risks | "Welcome to Fuel and Combustion Systems Safety: Global Perspective on Fuel and Combustion System Risks. It's a big world out there and combustion equipment is everywhere. You can learn a lot by seeing what the state of the art is and is not in both developed and developing countries. This course provides insights from such experiences. You will see the good, the bad, and the ugly so that you can take advantage of them all without the pain that others have experienced to gain this knowledge. This course is especially important if you operate equipment in developing countries. This can be an entirely different experience and one that requires considerable thought about fuel choices, installation issues, and training of staff. To be successful your focus has to be on simplicity. Real-life stories in this course communicate this clearly. Don't be fooled by the title of the course. There's information here that applies for equipment operated anywhere. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Business Contingency Planning | "Welcome to Fuel and Combustion Systems Safety - Business Contingency Planning. Everything presented in this course is focused on helping you to reduce the probability and severity of a fuel or combustion system accident. However, nothing can bring all of this to zero risk. For example, there will always be things beyond your control, such as weather events. This course will help you to respond in an effective and timely manner and to know something about what to expect should there be an incident at your facility. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Process Safety Management (PSM): Employee Participation | "The Union Carbide explosions in Bhopal India, 1984 and Institute, West Virginia in 1985. The Phillips Petroleum explosion in 1989, and ARCO explosion in 1990. These are just four major incidents that led to the OSHA Process Safety Management Standards. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released. The employee participation element is a critical part of PSM that enhances overall effectiveness in areas including Process Hazard Analysis (PHA) and Incident Investigation. In this interactive online video course, learn from industry expert Jon Wallace about the employee participation component of the Process Safety Management Standards. Subjects covered include employer requirements for a written plan of action to confirm employee participation, consultation with employees regarding hazards, and employee access to process hazard analysis. Employers must follow OSHA regulations and ensure employee participation and EPA Clean Air Act Amendments are implemented in training." | 0.5 | Intermediate |
| Process Safety Management (PSM): Operating Procedures | "Methyl isocyanide, aldicarb oxime, anhydrous ammonia. These are just three examples of highly toxic chemicals that have been released into the atmosphere as a result of chemical plant explosions in recent years. Exposure to highly hazardous chemicals can be fatal; therefore, Process Safety Management (PSM) was designed to help prevent such chemicals from being released. PSM outlines steps for the management of hazards associated with processes using highly hazardous chemicals. Because most PSM covered processes are complex operations, the need for clear operating procedures is critical in order to maintain a safe and healthy work environment. In this interactive online video course, industry expert Jon Wallace discusses the required elements for operating procedures, including steps for each operating phase, operating limits, and safety and health considerations. A solid understanding of this information will help ensure employers are in compliance with OSHA PSM regulations." | 1 | Intermediate |
| Process Safety Management (PSM): Training | "On January 31, 2006, an explosion caused by a runaway chemical reaction rocked the Synthron facility in Morganton, North Carolina. One worker was fatally burned, and 14 others were injured (two seriously). The explosion destroyed the facility and damaged structures in the nearby community. Incident investigation revealed that Synthron had minimal safety information on its chemical processes, and personnel were poorly prepared to recognize dangers from an uncontrolled chemical reaction. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released, and effective training is needed to ensure the safe operation of oftentimes complex operations. In this interactive online video course, industry expert Jon Wallace discusses the elements of the PSM Training requirement, including initial training, refresher training, and training documentation. A solid understanding of the details of this requirement will help ensure employers are in compliance with OSHA PSM regulations." | 1 | Intermediate |
| Process Safety Management (PSM): Contractors | "On October 23, 1989, an explosion occurred at the Phillips Petroleum polyethylene plant in Pasadena, Texas. A massive vapor cloud was created causing 23 fatalities and over 100 injuries. Investigation into the incident revealed that a specialist maintenance contractor employed to do work on one of the reactors did not follow the proper procedures prior to maintenance work. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. Because contractors perform crucial activities on PSM covered processes, unsafe contractor work may jeopardize other employees as well as the contractors themselves. In this interactive online video course, safety expert Jon Wallace discusses the elements of the PSM Contractor requirement, including contractor selection, training, and evaluation. It is critical that contractors understand potential hazards of their work environment; therefore, a solid understanding of the PSM Contractor requirement will help ensure employers correctly train contractors on OSHA regulations. " | 1 | Intermediate |
| Process Safety Management (PSM): Pre-Startup Safety Review | "On August 28, 2008, an explosion at the Bayer Crop Science plant in Charleston, West Virginia killed two workers and injured eight others. The ignition of a five-thousand pound chemical vat occurred during the restart of the methomyl unit after upgrades were performed on the system. Incident investigation revealed several causes, including inadequate pre-startup safety review, and inadequate operator training on the new system. This is an example of the importance of Process Safety Management (PSM). PSM is aimed at preventing highly hazardous chemicals from being released, and startup and shutdown are potentially the two most dangerous times for a PSM process. In this interactive online video course, safety expert Jon Wallace discusses the components of the PSM Pre-Startup Safety Review. The purpose of this review is to ensure safe operation of a PSM covered process by identifying and correcting unsafe conditions prior to process operation." | 1 | Intermediate |

VectorSolutions™

# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Process Safety Management (PSM): Hot Work Permits | In January 2008 there was a fire at the Monte Carlo Resort and Casino in Paradise, Nevada. Welders at the time did not use fire protection mats, and the resulting fire caused 100 million dollars in damage, with thirteen people suffering from smoke inhalation and seventeen people suffering from minor injuries. This could have been prevented with an effective Project Safety Management Hot Work Permit Program. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. The Hot Work Permit Program is one of the fundamental components of occupational safety. Hot Works is geared towards any work that produces sparks or flames, and can includes welding and cutting among potential ignition sources. In this interactive online video course, safety expert Jon Wallace discusses the components of an effective Hot Work Permit program, how to implement it, and how it can prevent property damage, and loss of life. An effective Hot Works Permit Program will also help avoid OSHA violations. | 1 | Intermediate |
| Process Safety Management (PSM): Incident Investigations | There have been many incidents involving multiple losses of life that led to the formation of the OSHA Process Safety Management Standard. Learning from past incidents and investigating the root causes of these incidents can help us be prepared and prevent history from repeating itself. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of incident investigation as part of the process safety management program. You will also learn about incident investigation requirements, and how to implement an incident investigation program into your overall process safety management program. | 1 | Intermediate |
| Process Safety Management (PSM): Emergency Planning & Response | Proper training and preplanning is an essential part of an emergency action plan and can help prevent disasters from occurring. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of emergency planning and response as part of the overall process safety management program. You will also learn about emergency planning and response requirements and how to implement emergency planning and response into your overall process safety management program. | 1 | Intermediate |
| Process Safety Management (PSM): Compliance Audits | Compliance audits serve as a self-evaluation for employers to measure the effectiveness of their process safety management system. Audits can identify problem areas and assist employers in directing attention to process safety management weaknesses. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of compliance audits as part of the overall process safety management program. You will also learn how to implement compliance audits into your overall process safety management program and how to evaluate compliance with process safety management compliance audit requirements. | 1 | Intermediate |
| Process Safety Management (PSM): Trade Secrets | There are companies that have millions of dollars in trade secrets and making that information accessible to competitors or the general public can have a significant effect on their competitive advantage. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about trade secret requirements outlined in the process safely management standard. You will also learn about your company's rights and responsibilities with respect to company trade secrets and OSHA's rights and responsibilities to access trade secret information. | 0.5 | Intermediate |
| Unstable, Reactive, and Energetic Compounds | Chemical reactions are part of our daily lives. From cooking in the kitchen, to driving a car, to handling chemicals at your workplace, these reactions are commonplace. Dangerously reactive liquids and solids can be extremely hazardous. Accidental or uncontrolled chemical reactions are important causes of severe personal injury and property damage. Unstable, Reactive, and Energetic Compounds course will explain the basic terminology relating to chemical hazard classes and reactivity. | 0.5 | Intermediate |
| EHS Regulatory Overview | Violating Environmental, Health and Safety regulations can result in fines and even the closure of your business. This interactive online course will teach you the major regulations for general industry as it pertains to Environmental, Health and Safety. You will learn how to determine which regulations are relevant to your companies and/or industry. You will also learn what your organization can do to maintain regulatory compliance with EHS regulations. | 1 | Intermediate |
| Ladder Safety | How much training have you had to use, store, and maintain a ladder properly to prevent falls and injuries? Working on ladders is a necessary part of most jobs in construction, maritime, and general industry. However, the use and care of ladders are not always as easy as it appears for the worker. Training is necessary to know the tolerances of the ladder, its safety features, and how to use the ladder. There have been many reported deaths and serious injuries from improper ladder use such as falls, electrocutions, and slips. This interactive online course will give you the information needed to be aware of the hazards related to ladders and best practices for using ladders. | 0.5 | Intermediate |
| Legionella Prevention and Control | In 1977, the Centers for Disease Control and Prevention (CDC) identified a condition known as Legionella pneumophila, which is a waterborne disease responsible for 34 deaths at an American Legion convention in Philadelphia. This interactive online course presents the causes and risk factors for Legionella contamination and some of the problems associated with Legionella in water systems in commercial buildings. Other topics include the ANSI/ASHRAE 188-2015 Standard and testing methodology and frequency. | 0.5 | Intermediate |
| Assessing Occupational Exposure | Assessing occupational exposures is a process for managing the health risks associated with workplace exposures to chemical, physical, and biological agents. This interactive, online course will cover ways to assess and prioritize exposures into exposure control categories to focus resources on the highest risks, differentiate "acceptable" from "unacceptable" exposures, and discuss ways to control "unacceptable" exposures. This course will introduce comprehensive strategies to best manage risk and resources. | 0.5 | Intermediate |
| Eye and Face Protection | Workers are subject to blindness, contusions and sometimes fatal injuries, due to eye and face hazards. 90% of all workplace eye injuries can be avoided by using the proper safety eyewear. This interactive online course will teach you how to select the proper personal protective equipment for eye safety. Additionally you will learn OSHA regulations for eye and face protection. You will also learn how to properly maintain your eye and face protective equipment. | 1 | Intermediate |
| Explosive and Flammable Chemicals | A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented. | 1 | Intermediate |
| HAZWOPER: Operations | "OSHA has established several levels of training under the umbrella of HAZWOPER (Hazardous Waste Operations and Emergency Response). HAZWOPER training is required for personnel that may potentially be exposed to hazardous materials and for those involved in spill cleanup operations. OSHA defines HAZWOPER through their General Industry Regulation Title 29, section 1910.120, also known as 29 CFR 1910.20. This regulation defines several operations where HAZWOPER training is required. The Operations portion of the HAZWOPER training will cover the following: Levels of training which must be completed. Emergency plans and hazardous waste informational sources, Responses to various hazardous waste sources, Medical surveillance programs, Site monitoring, engineering controls and work practices, Personal Protective Equipment (PPE)" | 1 | Intermediate |
| Irritants, Corrosives and Sensitizers | In this interactive online course, you will be introduced to the hazard classification and categories of an irritant, a corrosive, and sensitizer. In addition, you will learn how to identify these chemicals so you can protect yourself, and others, from them. Guidance for excessive risk will be given for these substances in the workplace. | 1 | Intermediate |

VectorSolutions

# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| American Chemistry Council's Responsible Care Program | In this interactive online course, you will be introduced to the program requirements for the American Chemistry Council Responsible Care Program. In addition, you will evaluate the global EHS initiatives that have been affected by member companies that participate in the Responsible Care Program. Finally, the inspection and reporting requirements will be explored regarding participation in the program. | 1 | Intermediate |
| Transporting Hazardous Materials | "Every day, hazardous materials are shipped in this country—materials that could threaten the safety of individuals, property, and the environment. These materials are transported by truck, by train, by air, and by water. Because of the risks posed by transporting hazardous materials, you need to know about the potential dangers and steps you must take to help protect yourself and others against them.<br>In this interactive, online course, we'll cover some general requirements associated with transporting hazardous materials. We'll look at what's meant by the term hazardous materials, and we'll see how these materials are classified. We'll also look at documentation and packaging that must be used when hazardous materials are shipped, and we'll look at labels and placards used to identify hazardous materials." | 0.5 | Intermediate |
| Ergonomics Economics | What is ergonomics and how does it benefit you? This interactive online course looks at medical aspects which will help you understand why ergonomic study and a well-designed work environment are not only important, but essential. In addition to general solutions presented, you will review 13 common user-friendly ergonomic guidelines which have been developed from exhaustive studies. Finally, you will examine the economics of ergonomics to learn how well-designed ergonomic products and practices can help produce savings. | 0.5 | Intermediate |
| Walking and Working Surfaces | Slips, trips, and falls constitute the majority of general industry accidents, second only to motor vehicle accidents. They cause 15% of all accidental deaths, and are third only to motor vehicles and violence as a cause of fatalities. The OSHA standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed and if appropriately applied, can reduce lost work time. This interactive online course details the OSHA standard in a practical format with easy to implement solutions to provide a workplace that is free from hazards to better protect the workplace and reduce unnecessary costs. | 0.5 | Intermediate |
| New Employee Safety Orientation | All occupations, even ones that are not typically assigned to dangerous tasks, have certain safety hazards associated with them. For some occupations, the hazards are obvious. For other occupations, however, the hazards may be less apparent. It would be difficult to fully discuss all safety rules and regulations to avoid every danger you could potentially encounter in your job. So, instead, this online interactive course provides a basic overview of safety issues to help improve your safety awareness. These safety issues include safe work habits, which should be part of your daily routine; personal protective equipment, which may be required to maintain your health and safety on the job; hazard communication, which provides vital information about chemicals and other hazards that affect working conditions; and fire safety, which is a critical concern in any workplace. | 0.5 | Intermediate |
| First Responder Operations Level Refresher | This course is designed to be a refresher for the Operations Level Responder to Hazardous Materials Incidents, meeting the requirements of NFPA 472 and 29 CFR 1910.120(q). The course is divided into four modules. Each module should take approximately two hours to complete. The first module covers how to survey a hazmat spill or incident; how to collect hazard and response information with MSDSs, labels, and markings; and how to identify the various transport containers and storage tanks used for hazardous materials. The second module covers the chemical and physical properties of materials and their impact on storage and transport containers; response objectives, including how to assess the risk to a responder for each hazard class; and how to determine the suitability of SCBA and personal protective equipment. The third module covers the principles of site management, how to establish and enforce control zones, and tactics for emergency decontamination. It will discuss common types of releases and how to deal with them, and how to conduct defensive operations such as damming and diking and air monitoring. The fourth module covers incident management systems and the first responder's role in a response plan. It will also cover the potential for terrorist attacks, typical agents used in a terrorist event, and the appropriate response tactics. | 8 | Intermediate |
| Occupational Safety Training: Introduction to OSHA | Many of the health and safety programs and procedures in this Health and Safety Guide are derived from federal Occupational Safety and Health Administration (OSHA) regulations. This course provides you with some background information about OSHA and OSHA standards, inspections, citations, and penalties. At the end of this course, you will be able to distinguish between the role of OSHA and the role of the office of Environmental Health and Safety (EHS). Learn more about the role of OSHA in establishing a safe and secure work environment. | 0.5 | Intermediate |
| OSHA 10 Hour Construction Program | "The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: Introduction to OSHA, Electrical Safety, Fall Protection, Struck-By & Caught-Between Accidents, Personal Protective Equipment (PPE), Scaffolds, Cranes, Hand & Power Tools, Excavations, Materials Storage, Demolition, Hazards in Construction," | 10 | Fundamental |
| Texas Electrician 4 Hour CE Program #5 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units. | 4 | Intermediate |

# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Texas Electrician 4 Hour CE Program #6 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 4 | Intermediate |
| Texas Electrician 4 Hour CE Program #7 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 4 | Intermediate |
| Washington Electrical Contractor 4 hour program #1 | This 4-hour course is formatted in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices tha | 4 | Intermediate |
| IICRC 7 Hour General Mold Program | This is a 5-part, interactive course. Part one of this course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. The mold remediation industry is expected to follow the "Standard of Care". Who defines what that is? Where can it be found? Who is the enforcer? Part 2 of this course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure. Part 3 of this course examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. Part 4 of this course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap. Part 5 of this course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms. | 7 | Fundamental |
| IICRC 7 Hour Mold Remediation Program #1 | This is a 7-part, interactive course. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. In part 1, we will visit the terminology and the recent trends to equip you to make better decisions for your team and project. Part 2 will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. Part 3 of this course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. Part 4 of this course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. Part 5 will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. Part 6 shows you how to "set the bar" so the technicians know what to do, clients are happy, and each project has a better chance of profit and success. Part 7 covers equipment to use, how to use it, and how to take care of it. This course allows you to quickly learn from practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list. | 7 | Fundamental |
| Kitchen Safety | With the kitchen being one of the busiest departments in your establishment, employees may be tempted to take shortcuts when it comes to safety. New and experienced kitchen staff will benefit from watching this program as they learn the potential hazards present in the kitchen environment and what action to take to reduce the risk of accidents or injuries. Topics covered also include: Prevention of slips, trips and falls, Knife use and safety, Kitchen machinery, Fire and burn prevention, Chemical and hazardous materials | 0.25 | Fundamental |
| The Safe Operation of Utility Carts | Utility Carts are used in many types of facilities from warehouses to apartment complexes. This video addresses the many hazardous and potentially dangerous situations often overlooked by Utility Cart operators. It stresses the importance of following safety guidelines, and the problems caused by complacency in the operation and basic maintenance of these utility vehicles. Topics covered also include: Daily Inspections (tires, fluids, steering, obstacles)Load limits Occupant & Pedestrian safety Speeding, skidding & slick surfaces Turns, center of gravity & blind spots Backing up, ramps and parking Rules for riders | 0.15 | Fundamental |

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# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Preventing The Spread Of Contagious Illness | This new program, which includes information about seasonal flu, avian flu, SARS and MRSA in addition to swine flu, explains the origins and symptoms of these illnesses as well as the general hygiene and prevention measures required to prevent spreading and contracting all contagious illnesses. The video stresses prevention and the personal responsibility required to avoid spreading an illness or infection. Topics covered also include: Decontaminating work areas, Special MRSA precautions, Responding to a potential infection, Medical diagnosis and treatment of contagious illnesses | 0.25 | Fundamental |
| Bloodborne Pathogens for Custodians | "Maintenance and custodial workers regularly encounter situations where they could be exposed to a bloodborne pathogen. This video, produced especially for custodian and maintenance staff, demonstrates how custodians and maintenance workers can safely clean up spills of blood or other potentially infectious materials without risking exposure. Topics covered also include: What bloodborne pathogens are, Diseases that could be transmitted, Potential exposure routes, How to protect yourself from exposure" | 0.25 | Fundamental |
| WSI - Groundskeeping Safety | After a frightening incident, expert workplace investigators are called to crack the case. In the midst of the story, viewers will learn about the hazards of exposure to the various machinery and elements of outdoor work environments. In this unique video, emphasis is placed on working in the elements and how to recognize, prevent and handle heat stress and a variety of other outdoor situations. This landscaping safety video is designed to prevent complacency from entering into your landscaping training. | 0.25 | Fundamental |
| Baler Safety | Cardboard balers are a common sight in many retail stores. There are many different types of balers that may operate in slightly different ways. However, what they all have in common are safety hazards and the need to follow safe operating procedures. This program is designed to train employees how to operate a baler safely. Topics covered also include :Basic safety rules for baler use, Pre-use inspection, Standard operating procedures, Safely removing the baled cardboard | 0.15 | Fundamental |
| Box Cutter Safety | Box cutters are used in every type of retail environment. Millions of cuts are made with box cutters each day and it only takes a moment of inattention to cause an injury. Regardless of the type of box cutters used, they all can cause serious injuries if not handled properly. This video program is designed to train your employees on the dangers of box cutters as well as demonstrate the steps they can take to remain safe. Topics covered also include: Safe body positioning, Proper storage of the box cutter, Blade disposal, Safe blade changing techniques | 0.1 | Fundamental |
| Heavy Truck Braking System and Braking Techniques | The single most important component in any vehicle is the braking system, especially on heavy trucks. The tractor portion of a tractor-semi trailer rig may have ten or more valves controlling the air flow to the brakes. This program reviews the types of braking systems found on large trucks versus cars and illustrates the importance of properly maintaining the braking system. | 0.25 | Fundamental |
| Safe Backing of Tractor Trailer Rigs | Backing a single trailer or a set of doubles with a semi tractor is the most dangerous, intricate and time-consuming set of maneuvers a big rig driver has to master. No matter how many miles you drive forward, not one of those miles will help when it comes to backing. This program trains drivers on the mechanics and techniques required in backing large vehicles such as tractor trailers, and discusses using the _cone of visibility_ to insure safe backing. | 0.25 | Fundamental |
| Bobtailing and Jackknifing | Bobtailing is sometimes necessary but a dangerous method of driving a big rig tractor without any trailing component. This program is designed to train your drivers on the challenges of bobtailing and the dangers of jackknifing. Drivers will learn how the profile, weight dynamics and engine power of the tractor can cause problems without a trailer attached. | 0.25 | Fundamental |
| Safe Food Handling | According to the CDC, every year in the US, 48 million people are infected with a food borne illness, 128,000 are hospitalized and 3,000 people die. Nobody wants this to happen; and, with proper training in safe food handling, it doesn't have to. Food borne illnesses can be prevented by insuring your employees are properly trained on basic food safety procedures. This program is targeted at everyone involved in the preparation, handling or service of food and outlines what these basic procedures are. It can assist employers on documenting employee training if required by their local health agency. Topics covered also include: Food-borne illnesses, Time and temperature control, Personal hygiene Preventing contamination Cleaning and sanitizing equipment and utensils, Preventing cross contamination, Housekeeping and maintenance. | 0.25 | Fundamental |
| Tree Trimming Safety | Tree trimming is a job that requires a professional attitude and a high level of training in order to work safely and productively. The very nature of tree trimming lends itself to many hazards. Of course, we all are aware of the potential of a serious fall, but there are also risks of coming in contact with energized utilities, falling trees and limbs, contact with poison ivy, oak, or even snakes. A good tree trimming program must be designed to provide safe working conditions, the training needed to do the job safely and efficiently, selection of qualified personnel, and providing well-maintained tools to do the job. Topics covered also include: Saws, axes, and pruning tools Chain saw use Personal protective equipment Safety belts, climbing spikes, and harnesses Working from ladders, boom trucks or aerial baskets Planning and other considerations that need | 0.25 | Fundamental |
| Chain saw Safety | Using a chain saw is something landscape personnel in public works and many other occupations must frequently do. Because of the dangers inherent in chain saw use, it is critical that you operators be properly trained on how to use them. This comprehensive video demonstrates chain saw use by skilled operators. In it, the most important techniques to prevent injuries when using a chain saw are covered. Every chain saw operator can learn something from this easy to understand program. | 0.25 | Fundamental |
| Chain saw Accidents - The Consequences | Chain saw accidents can be devastating and drastically affect your quality of life. In this program, we explain how chain saw accidents can occur, and what the consequences can be. Filmed with visual scenes of injuries to employees who were involved in chain saw accidents, this video hammers home the seriousness of what can happen when using a chain saw, and the importance of following proper safety procedures at all times during chain saw use. By demonstrating the many ways a chain saw accident can occur your employees will walk away trained in how to prevent them. | 0.15 | Fundamental |
| Shop Safety | The shop. A lot of different things go on in here. What DOESN'T go on in here? It's a busy place with a variety of functions, tools, personnel and responsibilities. Perhaps the most important responsibility is safety....your safety and the safety of those working around you. Topics covered also include: Fire Prevention Electrical Safety Compressed Gas Respiratory Hazards Safe Lifting Chemicals Slips and Falls and Injury Reporting | 0.1 | Fundamental |
| Security Begins At The Front Desk | Hotel Security requires the participation and cooperation of everyone on Staff, not limited to Security Personnel. Front Desk personnel are a pivotal part of the Security of your property. Front Desk personnel are often the first line of defense and have perhaps the most visible role in spotting and preventing potential threats, and reporting suspicious activity. The Security of any property is at higher risk without a vigilant Front Desk Staff. This program trains your Front Desk Associates, Bell Staff or anyone working in, around or near your properties lobby. Topics covered also include: Protecting Guest Privacy, Human Trafficking, Emergency Response, Key Control | 0.1 | Fundamental |
| Clean And Safe: Restrooms | Clean restrooms are significant. But, this video isn't just about HOW to clean a restroom, its about how to do it SAFELY. What PPE is needed? How can slips and falls be prevented in damp environments? How can you work with chemicals safely? What should be done with broken glass and/or other pointed objects? All of these questions and more are answered in this video designed for both Housekeeping and Facilities personnel. | 0.1 | Fundamental |

VectorSolutions™

# Health, Safety & Environment Premium (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Backhoe & Front End Loader Safety | Backhoes are one of the most common types of construction equipment found on jobsites. Backhoe loaders can dig, scrape and load material. With special attachments they can perform virtually any required task. Backhoe loaders are complicated machines and it is important your employees know and understand the equipment capabilities. This program covers the maintenance and operation of a backhoe with emphasis on safety. This program contains both an English & Spanish version on the DVD and also comes with a Leaders Guide, PowerPoint presentation, end of course quiz, attendance log, and completion certificate. | 0.25 | Fundamental |
| Janitorial Safety | Janitorial workers have many varied responsibilities. It would be easier to talk about what tasks they DON'T perform, than what they actually do on a daily basis. Regardless of how many different tasks they perform or how busy they are, the simple truth is that their safety should be a companies top priority. This program trains your employees on how to identify the common hazards that janitorial staff face on a daily basis and the steps they can take to minimize risk. It also includes both English and Spanish versions on one DVD. Topics covered also include: Personal Protective Equipment, Back Injury Prevention,Bloodborne Pathogens, Slips, Trips and Falls, Electrical Safety, Chemicals | 0.25 | Fundamental |
| Commercial Kitchen Fire Prevention | "Fires are an ever-present danger in a commercial kitchen. But the danger can be controlled and contained by following sound fire prevention principles. This video outlines these principles and trains your employees that properly following them will help in preventing and containing fires in your establishment. This program covers the different types of fire suppression systems as well as how to operate and inspect them. Additionally, the importance of keeping flues and appliances grease-free is reviewed as well as other common sense tips that will help your employees remain safe. It comes with both English and Spanish on one DVD. Topics covered also include: Different types of fire suppression systems, How to operate and inspect these systems, The importance of keeping flues and appliances grease-free, Common sense tips to help employees remain safe" | 0.1 | Fundamental |
| Property Management Safety - Employee Slips and Falls | Property management company employees work in many types of varied environments. Inside, outside, rain, snow, and wet floors are just a few of the many slip hazards they face. This training program is designed to promote awareness of slips and falls from a property management perspective. It trains your employees on various potential hazards, the importance of proper maintenance and cleaning procedures, and many other aspects of slip and fall prevention. This DVD contains both English and Spanish versions. | 0.15 | Fundamental |
| Property Management Safety - Fire Prevention | Few things can be more terrifying and catastrophic than a fire, especially in a multi-unit property environment. That is why training and education is so important. This video program trains your employees on ways fires can be prevented, conditions that contribute to fires and the steps employees can take to minimize the risk of a potential fire in a unit. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Personal Protective Equipment | During their workday, property management maintenance personnel can face many different types of safety situations. As such, it is important that they be properly trained on what Personal Protective Equipment is required and how to use it. Personal Protective Equipment is often overlooked. Failure to utilize the correct PPE can have disastrous, life-changing results. This video emphasizes to your employees the importance of making sure they have and use the proper PPE in a multi-unit complex environment. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Resident Safety | In every property management environment, nothing is more important than the safety of your residents. There a many hazards that can exist when you have a large number of people living close to each other. Fire prevention, cleanliness and maintenance are just a few of the subjects covered in this production training program. This video highlights trains your employees on the key issues relating to safety in regards to new residents. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Resident Slips and Falls | When a resident in a multi-unit property injures themselves through a slip or fall, the potential liability exposure to management is great. All property management employees must be aware of this and what their responsibilities are to keep slip and fall hazards to a minimum. With a focus on exterior and weather related hazards, this training program is designed to train your employees on what types of hazards to look for and how they should be corrected. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Bed Bugs: Facts And Prevention | Bed bugs have made a comeback in the US due to increased international travel. Bed bugs can crawl out of a travelers suitcases and establish themselves in hotel rooms. A Bed bug problem can be quite expensive. In fact, an outbreak could lead to serious litigation and large settlements and loss of business. Can your property afford it? This program trains your employees to spot bed bugs so they can be caught in the early stages and remediated before a major infestation occurs. This DVD contains both English and Spanish versions. | 0.15 | Fundamental |
| Smart Workplaces: Designing Safe Workspaces & Preventing Injury | Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more. | 1 | Fundamental |
| Smart Workplaces: Preparing for a Pandemic Flu Outbreak | What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff. | 1 | Intermediate |

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# Professional Development

| Title | Description | Hours | Level |
|---|---|---|---|
| 3-way Communication | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional 3-way Communication human performance tool and discover its guiding purpose of clear, concise communication and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| A Leaders Guide to Decision Making | Sometimes choices are tough. We second guess our decisions or stall making one to start with. In this Effective Leaders Guide for making decisions, learn the steps to make more strategic choices and to feel comfortable with the decisions you have made. Using application exercises and a rich multimedia process you will soon be more comfortable in your own skin and more effective with your choices by applying what you have learned in this foundational course. | 0.5 | Intermediate |
| A Manager's Guide to Performance Appraisals | This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for "Goal Statements", "Descriptions and Evaluation of Competencies", "Self Assessment" and more. There is a test included at the end of this course. | 1 | Intermediate |
| Access 2013: 01-Working with Databases in Access 2013 | Study the characteristics and components of a database, while learning the capabilities provided by Access 2013 to build and implement databases. You will also find discussions on the distinction between queries and forms, on how to update and delete records, on the process of adding records to labels, and on the different filtering options that can be used to view data. In the relational database section, you will focus on the difference between flat and relational databases, the rules that apply to building relational databases, how to identify entities and attributes as well as use database diagrams. Learn these foundational topics so that you can deepen your understanding of how to create and work with databases in Access 2013. This is the first course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 02-Creating, Modifying, and Managing Tables in Access 2013 | Databases can save you time and energy. They are also useful for managing large quantities of data. In this training, you will observe how to create them as you go through discussions on generating databases from a template, the Wizard, the old format, and manually. You will also spend time taking a closer look at database components, particularly tables, table relationships, and fields. In the field section, you will learn about what to do with unique values, testing a field, setting primary key fields, field sizes, field data types, setting default values, and changing data formats. Learn about how to work with each of these database elements in Access 2013. This is the second course in the Access 2013 (77-424) series. | 2.25 | Intermediate |
| Access 2013: 03-Working with Forms in Access 2013 | Take a closer look at forms as you focus on creating, enhancing, and formatting forms. In the form organization section, you will find presentations on tab modification, the way data sources are modified, and the steps to adding subforms. Some of the highlights from the formatting section include steps on applying themes and inserting images and backgrounds, how to sort records, and an overview of the printing layouts available. The navigation form section details the steps to creating navigation forms and how to format them. Overall, this course will introduce you to forms and teach you how to modify forms using Access 2013. This is the third course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 04-Working with Queries in Access 2013 | Learn the basics of queries as you look at the purpose of queries, how to add fields to queries, query modifications, working with multitable queries, and types of criteria in queries. There is also sections of this training dedicated to demonstrating how queries function. In the query calculation section, you will look at calculated fields, the Expression Builder, numeric and text calculation, and crosstab queries. The last section concentrates on action queries, which reviews how to use action queries, the steps to making table queries, how to update an action query, and append it. Take time to thoroughly explore queries so that you can use them to their fullest potential through Access 2013. This is the fourth course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 05-Sharing and Protecting Your Data in Access 2013 | Dive into making reports with Access 2013. They are the final piece to working with an Access database. There's also a section containing different tips for taking the Microsofts Access exam. The Protection section talks about protecting, splitting, merging, and encrypting a database. In the end, you will have a better understanding of how to use Access 2013 to create, modify, and print reports, as well as protect and maintain databases. With these skills, you will be equipped to work with reports and properly maintain databases. The final section of this course provides you with tips to help you successfully pass Microsofts 77-424 exam. This is the final course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Active Shooter and Other Acts of Targeted Violence | "Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders. " | 1 | Fundamental |
| Active Shooter Response | An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers. | 0.25 | Intermediate |
| ADA Compliance in Business | The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities. | 1.25 | Intermediate |
| Adobe Acrobat DC Essentials | Create, Manipulate, and Liberate your PDF Documents with Adobe Acrobat. In this "Uniquely Engaging"TM course from Bigger Brains you will learn to use Adobe Acrobat Pro DC to convert documents to PDF files, search within PDF documents, edit and markup PDF documents, and convert and optimize PDF files. Taught by 25-year IT veteran Chip Reaves, Adobe Acrobat DC Essentials will help beginners and experts get more from the latest version of the Adobe Acrobat solutions. | 3 | Fundamental |
| Adult Learning | People learn in a variety of different ways. That is why it is critical to understand the basics of adult learning when training people at work. This course explains how people learn and lists specific principles of adult learning. It also covers different learning styles and the importance of active learning, explains how information is stored in and later retrieved from the brain, and gives tips for aiding that process. | 0.25 | Intermediate |
| Advanced Management Skills | In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand. | 5 | Intermediate |

VectorSolutions™

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| AEC Success: 7 Steps for Using LinkedIn® Effectively | LinkedIn® is an avenue you can use to help you build your reputation in your field and become better at marketing and business development. This interactive online course will teach you ten action steps to take to build a strong LinkedIn® profile. Additionally you will learn who you should connect with on LinkedIn® to maximize your exposure. You will also learn the do's and don'ts of maximizing your usage in LinkedIn® groups. | 0.5 | Fundamental |
| AEC Success: Business Development and Sales | "Everyone lives by selling something." Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action. | 1 | Fundamental |
| AEC Success: Conflict Resolution in the Workplace | Team projects often result in conflicts that have to be resolved between different parties. Learning to resolve a conflict is a very valuable skill that can be used in all endeavors of business and life. This interactive online course will teach you five strategies for dealing with conflicts. Additionally you will learn two core skill that are necessary to successfully resolve conflicts. You will also learn about emotional awareness and how it can help you in certain situations. | 1 | Fundamental |
| AEC Success: Designing Presentation Visual Aids | Whether you're presenting at a conference or at a lunch and learn, visual aids can be a powerful tool to catch and hold your audience's attention and reinforce the message you are trying to get across. This interactive online course will outline different types of visual aids and how to use them effectively. Additionally, you will be provided with strategies on how to effectively build a slide deck that will powerfully transmit your message to the audience in an engaging way. Attention spans are low in today's world, but after this session, you'll have the tools needed to hold attention with eye-catching visual aids. | 0.5 | Fundamental |
| AEC Success: Effective Decision Making | Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home. | 1 | Fundamental |
| AEC Success: Five Steps to Effective E-mail Management | Poor email management can kill productivity and cause you to be stressed. Implementing a proper email system will help you be more productive, more billable, and give you more time to do deep meaningful work. This interactive online course will teach you email processing and management steps to help you simplify your email filing system. You will also learn 7 steps to writing more productive emails. | 0.5 | Fundamental |
| AEC Success: How to Become a Top-Notch Industry Leader | Are you a positive powerful leader? Most engineers and other technical professionals strive to become a "manager" and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift. | 1 | Fundamental |
| AEC Success: How to Communicate and Present Effectively | Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator. | 1 | Fundamental |
| AEC Success: How to Create a Focused, Productive and Low Stress Career and Life | Being unorganized can lead to a stressful and less productive career and life. This interactive online course will teach you how to improve time management efforts to bring more balance and focus to your career and life. You will learn three specific rules for effective time management and better work life balance. You will also learn seven things you can do to increase your ability to focus. | 0.5 | Fundamental |
| AEC Success: How to Find and/or Become a Mentor | A mentor is someone who can guide you toward reaching your career goals and ultimately your definition of success. This interactive online course will teach you how to find a mentor using five specific considerations. Additionally you will learn how to become a mentor and then benefits mentoring will have on your career success. You will also learn strategies for getting the most out of the mentoring relationship. | 0.5 | Fundamental |
| AEC Success: Improving Organization and Productivity | In this day and age, it is becoming nearly impossible to focus and be productive because people are being pulled in so many different directions. Recognizing high leverage tasks can help you become organized and productive as you prepare and plan your day. In this interactive, online course, you'll be given actionable strategies for increasing your productivity on a day-to-day basis including tips for effective email management. | 0.5 | Fundamental |
| AEC Success: Networking and Relationship Building | Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come. | 1 | Fundamental |
| AEC Success: Obtaining the Right Credentials in Your Career | Professionals of all ages are faced with career and life changing decisions every day and in order to create an extraordinary A/E/C career you must make the right decisions for you, while supporting the organization you work for and the clients you serve. This interactive online course will walk you through a goal setting process, that you can utilize to help make critical career decisions and will also serve as a credential planning process. Furthermore, at the end of this course, using the process provided you will be able to identify the right credentials for you, so you can start to pursue them and change the course of your career forever. | 0.5 | Fundamental |
| AEC Success: Strategies for a Successful Interview | We have all been through the interview process, either through applying for a job/promotion or chasing a project. We also often follow established templates that almost everyone uses which result in eye rolling by the interviewers. This online interactive course can help you get out of this rut so that you can develop a fresh look for your next interview in pursuit of a project. You will learn what to research before the interview, how to observe and analyze the environment of the interview location, a strategic sitting layout and how to use all of this to your advantage prior to the interview. This course will show you how to manage the pace of the interview and how to answer tough questions. Finally, you'll learn how to elegantly end the interview and which follow-up activities will help you standout amongst the thundering herd. Learn what to do and what NOT to do to subtly manage your client interview to ensure you and your team members shine! | 1 | Fundamental |
| AEC Success: Time Management and Billable Hours | Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you. | 1 | Fundamental |
| An Effective Leader's Guide to Time Management | Ever wonder how some people get more done in the same 24 hours than you do? Gain the skills to up your productivity and own your time with this effective leaders guide to time management. This course uses application exercises and a rich multi-media process to integrate effective time management skills into your daily practices. This results in increased productivity, effectiveness, and overall desired outcomes. | 0.5 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| An Entrepreneur's Guide to Networking | Facebook, LinkedIn, Twitter, professional associations, other departments, competitors the opportunities for networking, both social and in person, are endless. Thus it is vital to learn to be strategic about your networking efforts in order to build the best relationships and truly get the results you want. Through application exercises and a rich multimedia process, this course will teach you what you need to know and do to be a strategic and effective 'networker'. | 0.5 | Intermediate |
| Anti-Harassment Training for All Employees - California | "Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for the state of California. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to all workers by Jan. 1, 2020, and every two years thereafter. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy." | 1 | Intermediate |
| Anti-Harassment Training for All Employees - Maine | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for Maine. | 1 | Intermediate |
| Anti-Harassment Training for All Employees - New York City and State | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for all of New York, including New York City. | 1.5 | Intermediate |
| Anti-Harassment Training for All Employees - Non-State Specific | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, will help foster an atmosphere of respect. Compliant for use in IL | 1 | Intermediate |
| Anti-Harassment Training for Supervisors and Managers - California | "Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, "sexual harassment" is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in California this course includes specific references to California laws regarding Sexual Harassment training. This course is designed to be compliant with California standards. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to supervisory personnel on prevention of sexual harassment. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy." | 2 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - Connecticut | "Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, "sexual harassment" is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in Connecticut this course includes specific references to Connecticut laws regarding Sexual Harassment training. This course is designed to comply with Connecticut standards." | 2 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - New York City and State | "Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in New York this course includes specific references to New York requirements regarding Sexual Harassment reporting. This course is designed to be compliant with New York standards. This course is specifically for Managers and Supervisors that are currently working or have the potential to work in New York State and New York City." | 1 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - Non-State Specific | "Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. This course is meant to be taken for general anti-harassment training and does not discuss the standards and/or regulations of any specific state." | 1 | Fundamental |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Appraising Performance | Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment. | 3.5 | Intermediate |
| "Are You Ready?" Checklist | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the "Are You Ready?" Checklist human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Business Finance | "Confused By Debits, Credits, Balance Sheets, And Other Business Accounting Terms?<br>This Is The Course For You! Learn the basic accounting and finance concepts you need to be successful in modern business." | 1 | Fundamental |
| Basics of Leadership: 01-Leadership Challenges | Leaders in the 21st century must accommodate themselves to todays rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 02-Changes in Corporate Culture | A companies organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 03-Keeping Employees Energized | Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3. | 1 | Intermediate |
| Basics of Leadership: 04-Knowledge Management | Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in todays workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 05-Elements of Change in Business | Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why its essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 06-Leadership Dynamics | Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series. | 1 | Intermediate |
| Be Proactive! Inclusion Starts With You | An inclusive work environment is created by individuals who value each other's differences - and, are proactive in stopping workplace discrimination or harassment. It's often difficult to know how to react when witnessing an individual or group of people experiencing any form of discrimination or harassment - but don't ignore it and walk away! This course will provide three ways you can be proactive about inclusion in your workplace. | 0.2 | Intermediate |
| Better Business Writing | Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world. | 0.75 | Intermediate |
| Blind Spots: Diversity and Inclusion | Is your biology working against you?This course will help you understand how our minds create blind spots and subconscious bias, and teach you how to evaluate the subconscious drivers that lead to ethical breakdowns. | 0.5 | Fundamental |
| Brain Bites - Email Management | "From a Frustrating Chore to a Powerful Tool Learn How To Make Email Work For You<br>More than ever before people rely on email in the workplace but we dread the amount of time it takes to read through and respond to all our messages. This course will give you the skills you need to tame your email mountain and use it as the effective tool its meant to be. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce." | 0.5 | Fundamental |
| Brain Bites - Empathy: The Key to Active Listening | "Show that you are actively listening by using empathy.<br>You have probably heard empathy described as "feeling someone's pain", but what if that is not helpful or possible? Empathy is an important skill to improve your active listening and make those around you feel heard. By the end of this course, you will be able to explain and practice empathy by noticing body language, voice, and tone. You will learn to communicate an awareness of what someone else is feeling and be a better active listener using empathy.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Let Them Know You're Listening | "Send the message that you are listening to understand. The truth is, it's easy to not listen. We are surrounded by distractions and the list of reasons we don't listen well is long. So we have to work on listening to make others feel heard—especially at work. By the end of this course, you will be able to describe how to become a better, more active listener through focusing your attention on the speaker and clarifying their message. You will learn to build trust and become more approachable.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Brain Bites - Organizing Your Files | "How To Stop Wasting Up To Two Hours Per Day Looking For Information<br>On average office workers spend one to two hours per day looking for information. Having an organized, searchable file and folder structure makes everyone more efficient and this course will show you how to do it.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce." | 0.5 | Fundamental |
| Brain Bites - Sharing a Workspace | "Learn to safely share a workspace to keep you and your coworkers healthy<br>The spread of COVID-19 led many offices to institute new rules and guidelines. This type of event underscores the importance of a clean environment in which employees are considerate about sharing space. By the end of this course, you will feel confident about sharing a workspace effectively to keep you and your coworkers healthy and safe. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Staying Safe Online | "Meet the hackers trying to break into your company, and learn how to recognize the ways they try to use you and your colleagues to steal money, data, and more. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Time Management | "Take back your day - learn how to reduce distractions and focus on priorities to get more done. Everyone is given the same twenty-four hours every day. How you use them is up to you, and in this mini-course we'll look at tips from some of the world's top experts in time management, including Stephen Covey, Dave Crenshaw, Peter Drucker, and Tim Ferriss. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Using Windows 10 | "Learn how to really use the tools in Windows 10 to be more productive. Windows 10 introduced many new tools, and updated others, including Cortana, Task View, Virtual Desktops, the Quick Access Screen, and more. In this mini-course we'll show you how to get around in Windows 10, and how to customize and take advantage of the major features and tools Windows 10 provides. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.75 | Fundamental |
| Brain Bites - Writing Effective Emails | "Send emails that are read, understood, and acted on. Let's face it, email is a fact of life. The average employee in the US receives 125 emails per day. The majority of professionals say email creates tension, confusion, and other negative consequences in their busy work days. This course will help you to be part of the solution by identifying ways to write better and fewer emails, that will also ensure your emails are read, understood, and acted on. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.5 | Fundamental |
| Brain Bites: Microsoft Teams Meetings | "Maximize your meetings with Microsoft Teams. If someone told you you'd be comfortable collaborating and meeting virtually in less than 30 minutes, would you believe them? Believe it! Bigger Brains has a way for you to learn Teams for virtual meetings that are just as easy and collaborative as your in-person gatherings. Thanks to its features and ease of use, Microsoft Teams is quickly becoming the dominant meeting platform for businesses of all sizes. Don't be left behind! We'll take a look at the major features of Teams meetings, including its deep integration with Microsoft Outlook and collaboration tools like Microsoft Whiteboard and PowerPoint. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.5 | Fundamental |
| Browser Security Basics | A large number of cyber attacks target browser activity. This course provides all staff members with an overview of browser security and ways to browse the web safely. Topics include: the types of browser threats, the basics of browser security and safe browsing practices. | 0.25 | Fundamental |
| Building Leadership Capability | As a leader you will have opportunity to coach and mentor others in both official and unofficial capacities. Knowing how to effectively coach and mentor your people is key to both their success and to preparing new leadership to step up. Through application exercises and a rich multimedia process, you will learn the skills to be an effective coach or mentor, and thus be able to build additional leadership capability in your organization. | 0.5 | Intermediate |
| Business Communication Fundamentals | In the business world, effective communication is an essential part of getting things done specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them what to include and what not to include for that's what dictates how well we communicate. | 0.75 | Intermediate |
| Business Dining Etiquette | Proper etiquette makes a statement about your character and competence as a professional. In this course we'll focus on business dining etiquette and how to present your best self when meeting with clients, colleagues, partners, or even friends. Upon completing this course you will understand proper business dining etiquette for before, during, and after the meal. In addition you will understand common place settings and proper utensils. Finally, you'll learn about proper etiquette when you are hosting a meal. | 0.5 | Intermediate |
| Business Disputes: Alternative Resolutions to Litigation | "Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation." | 1 | Advanced |
| Business Ethics | "Ethics is defined as the discipline dealing with what is good and bad and with moral duty and obligation. Practicing proper business ethics can be more simply stated as doing the right thing at work. Once you become an employee of the company, you become a part of many relationships that require that you behave in a manner that benefits you, those around you, and the company. This module will cover the ethics of your behavior involving relationships within the company and your behavior involving entities outside the company." | 0.5 | Intermediate |
| Business Ethics: Quick Refresh | Designed as a review to supplement a comprehensive business ethics course, you'll start out reviewing the definition of ethics and an understanding of how trust functions in our social interactions. We have an expectation of how others will behave towards us and how we will behave towards them. While engaging with each other, individuals behave unethically in ways that breach shared trust. You'll also look at some of the thinking errors associated with unethical behavior. From there, you will find brief descriptions on the different rules defining business ethics. For the sake of brevity, some information has been omitted, summarized, or simplified. | 0.5 | Intermediate |

VectorSolutions™

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Business Execution: 01-Execution Strategies | Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go. | 1.5 | Intermediate |
| Business Execution: 02-Inspiring Workplace Excellence | When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees. | 1 | Intermediate |
| Business Execution: 03-Turning Ideas into Actions | There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure. | 1.5 | Intermediate |
| Cell Phone Use in the Workplace | "Cell phones have become a standard part of everyday life. They allow us to call or text, find directions, take and share pictures, schedule our lives, deposit money, listen to music, and keep up with social media. While cell phones have many positive aspects, there is a time and place for their use. Using a cell phone improperly at your job site can pose dangers to you and your coworkers. This course will cover these dangers as well as best practices associated with cell phone use." | 0.5 | Intermediate |
| Change Management | Change is a constant in todays world. Business organizations are continually looking to improve performance by upgrading equipment, changing the organizational structure or job roles, or implementing new processes or procedures. The success of any change depends greatly on employees embracing the change. This course discusses several skills and tools necessary for supervisors to lead successful changes. | 0.5 | Intermediate |
| Clear Communication | Clear Communication is a course designed to familiarize participants with ways to improve their basic communication skills. After completing this course, participants should be able to describe effective methods for improving listening skills, describe ways to ensure that listeners receive a message as the speaker intended, and describe techniques for effectively giving and receiving feedback. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coaching Job Skills: 01-Determining Training Or Coaching | Coaching Job Skills teaches managers, supervisors and team leaders how to successfully coach employees in their jobs. In addition, it will help widen the breadth of skill sets for all employees. | 1 | Intermediate |
| Coaching Job Skills: 02-Your Path to Training New Skills | Learn and apply the five-step process for training your team members on new skills. | 1 | Intermediate |
| Coaching Job Skills: 03-Your Path to Coaching Existing Skills | Learn and apply the five-step process for coaching your team members on existing skills. | 1 | Intermediate |
| Coaching Job Skills: 04-Mastering Training New Skills | Practice Training New Skills in a full scenario situation. | 1 | Intermediate |
| Coaching Job Skills: 05-Mastering Coaching Existing Skills | Practice Coaching Existing Skills in a full scenario situation. | 1 | Intermediate |
| Coaching Job Skills: 06-Health Check | Test your ability to apply Coaching Job Skills concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Coaching with Confidence | LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be for themselves, and for their teams. | 6.5 | Intermediate |
| Collaborative Communication: 01-Communicating to Your Manager | Learn the background key concepts to effective communication to your boss or supervisor. | 1 | Intermediate |
| Collaborative Communication: 02-Your Manager's Communication Style | Identify the medium, frequency, and amount of detail needed to successfully communicate with your manager. | 1 | Intermediate |
| Collaborative Communication: 03-Your Path to Communicating Up | Learn and apply the five-step process for communicating to your boss or supervisor. | 1 | Intermediate |

VectorSolutions™

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Collaborative Communication: 04-Mastering Communicating Up | Practice Communicating Up in a full scenario situation. | 1 | Intermediate |
| Collaborative Communication: 05-Communicating Up Health Check | Test your ability to apply Communicating Up concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Communication Skills for Supervisors | Communication skills are frequently cited as the most important skills for supervisors. To be an effective supervisor, you must be able to communicate with all levels of the organization. Poor communication can have many negative consequences, such as poor performance due to lack of alignment on expectations, and conflicts between individuals. This module will cover some essential skills for communicating effectively, with a focus on communicating with your subordinates. | 0.5 | Intermediate |
| Company Layoffs and Downsizing | Layoffs, reduction, downsizing, rightsizing, staff cuts, managing redundancy; any way you say it, the reality is a complex process that impacts a lot of individuals and organizations worldwide. Through application exercises and a rich multimedia process, this course will increase your understanding of how to make this potentially traumatic experience as successful and positive as possible for everyone involved. | 0.75 | Intermediate |
| Conflict Management | When people work together, there will inevitably be disagreements. Some of these disagreements are minor, but some can turn into major conflicts. If conflicts are not resolved, they can lead to long-term tension and unhappiness among employees. This course illustrates how to resolve conflicts using the SLOW method, reasons for different points of view, and tips for face-to-face communication. Following the ideas in this course can help your team use conflict situations as an opportunity to solve work or personal problems, and therefore become more productive and unified. | 0.25 | Intermediate |
| Conflict Resolution | Dealing with conflict in the workplace can be difficult. Seeing a person with whom you have issues every day can be challenging and distracting. Resolving conflicts has a major positive effect on the work environment, making it happier and more productive. Having employees with this conflict resolving quality is an important part of creating a productive workplace. This conflict resolution training course highlights the important aspects of resolving conflicts in the workplace. The course offers a myriad of conflict resolution skills and strategies that will help employees better deal with disputes in the workplace. | 0.7 | Intermediate |
| Co-worker Coaching | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Co-worker Coaching human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Create a Windows App Using Free Tools and No Coding | Won't it be cool to create your own app? There is so much joy in seeing your app published or finding unique ways to share your content. Although, many of us do not have coding knowledge or simply do have the time to learn a programming language. Those obstacles should not stop us for publishing our ideas and content. Nor should the barrier of expensive development costs - either in the form of programmers or software tools or web services. This course is aimed at those who may or may not have content created but are unable to share their content via mobile or desktop apps because of time, costs, or IT resources and has been put together to show you how you can accomplish your goal of creating and publishing your own app without enduring the pain of learning a complicated code or paying additional fees. The course begins with the concepts and the design considerations one might think about when developing their app. And since this course uses whatever free resources are currently available, time is spent discussing the limitations present. After framing the design and objectives, the course creates apps step by step. The course builds upon itself as it progresses. The learning starts simple and then adds more complex content. At the end - and actually even at points up to the end - you will have your very of Windows app to share, use, and publish in the Windows store. There are options to port your app over to other operating systems and platforms briefly discussed at the end. You will have the pride and joy of knowing you accomplished something great. It will open your mind to all the possibilities that await and ignite your creative and problem solving drive. Ready? Let's build something.' | 2.5 | Intermediate |
| Creating a Code of Conduct | Ever wonder if a certain behavior is appropriate or out of bounds? Perhaps it is appropriate in one setting, between certain people, but not appropriate in another setting. Well, wonder no more! This course will take you through the steps to determine appropriate conduct and to navigate tricky or touchy ethical situations. To do or not to do . . . that is the question employs application exercises and a rich multi-media process, to increase your awareness and understanding and to provide you with a guide to navigate the sometime murky waters of ethics and appropriate code of conduct. | 0.5 | Intermediate |
| Creating Word Templates | "Don't re-create documents over and over! Learn about templates in Word to increase your productivity, save time, and create consistency. Being able to consistently create documents that have a uniform look and adhere to company standards can be challenging and time consuming. Use the templates feature in Word to do this effortlessly. Learn basics about effective design and using headings, sections, and your company's logo, fonts, and colors to produce professional and effective documents that will stand out!" | 0.5 | Fundamental |
| Critical Thinking and Problem Solving | Are you constantly firefighting? Does it seem as though problems always appear at the last minute or just before the weekend? In this course, you will learn strategic steps to prevent much chaos and solve new or recurring problems. Through the use of application exercises and rich multimedia process, your ability to think critically and solve problems effectively and in a timely manner will increase thus propelling your end results to new heights. | 0.6 | Intermediate |
| Cybersecurity Awareness for Business Leaders: Creating A Cybersecurity Culture | With today's wide range of threats, it is a must to ensure minimum standards of security. We often think that purchasing expensive security appliances can take care of it, but it's not even close. In this course, we learn the importance of injecting a cyber security culture in the mind of the people, executives and employees, understanding the roles of each department and key people to sustain the program, how to lead our teams for a more secure digital life and finally the importance of yearly training in maintaining constant secure environment. | 1 | Fundamental |
| Cybersecurity Awareness for Business Leaders: Incident Preparedness and Management Planning | "Maybe there is no way to eradicate threats and incidents completely, but surely being prepared and ready to anticipate incidents, can make the difference in limiting the damages.<br>In this online training we will identify the best practices to mitigate incidents, different types of cyber security insurance; how to get our team ready for attacks and how to effectively manage the crisis when an incident occurs. Moreover, we will learn the importance of post-event crisis management." | 0.5 | Fundamental |

VectorSolutions™

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Cybersecurity Awareness for Business Leaders: Laws and Global Compliance Standards | When it comes to compliance, business and corporate management should keep a close eye at being obedient to all of the legal laws and regulations in regards to how they manage the business and preserving their data. In many cases, deviations from the baselines has cost businesses huge penalties and fines, as well as delayed losses; therefore, in this training, we will be looking at regulations and their importance, key items to secure our business and personal data. | 0.5 | Fundamental |
| Cybersecurity Awareness for Business Leaders: Safeguarding Against Social Engineer Attacks | Social engineering has become the favorite tool for hackers to target and breach sophisticated networks, it remains an open window in almost every environment. in this course we will gain knowledge about the latest social engineering techniques and how hackers can obtain business and personal information about us to craft targeted attacks that may result in huge damages. We will learn also to identify intellectual property and how to safeguard it. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: Classifying and Safeguarding Data for Corporate and Personal Use | Failing to become cyber aware, failing to put measures in place that will protect our devices and network is also failing to protect our personal information, our place of business, and our customers. In this interactive online course we will discuss why classifying and safeguarding data is a priority that must not be ignored. We will also list the main types of classifications and state objectives for securing data. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: End-User Best Practices | We live in a busy, busy world. When it is so easy to connect to the internet and access vast amounts of information, it is easy to forget the dangers that lie in wait. From hotspots to password management, this interactive online course will walk you through end-user best practices. We will also discuss the importance of administrative rights, define types of physical attacks against privacy, and recommend ways to protect against malwares and viruses. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: Security Awareness Essentials | In our digital world today, attackers seem to be lurking behind every click of the mouse or tap on the screen. Many people forget that they are the keepers of their own security safety and the security safety of the institutions for which they are employed. In this interactive online course, we learn about the who, what, how, and why of security attacks. We discuss the potential losses associated with a successful security breaches by hackers and will understand the different way in which those security breaches can occur. Finally, we cover important actions you can take within your organization to limit security risks. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: Social Engineering | Social engineering is the art of extorting information from employees that can assist a hacker to breach the security of an organization and can be done by a human or it can be done digitally. In this interactive online course we will define phishing and identify common features, examples, and how to avoid phishing scams. We will also discuss identity theft and how to protect against it. | 0.5 | Fundamental |
| Cybersecurity Overview | The convenience of web access makes it easy to forget that we need to protect and care for our information. This introductory course provides an overview of cybercrime and cybersecurity, including the basics of cybersecurity along with the effects of cybercrime, the types of cyber threats and how users are susceptible. | 0.25 | Fundamental |
| Decision Making | Decision Making is a course designed to familiarize participants with techniques for making informed decisions and implementing them successfully on the job. After completing this course, participants should be able to describe common examples of poor decision making, describe some general types of decisions, describe several questions that should be asked before a decision-making process begins, explain how to define the desired outcome for a decision, and describe how to gather information to make an informed decision. Participants should also be able to describe how to build consensus during the decision-making process, explain how to use an impact/effort grid and weighted voting in the decision-making process, and describe the steps for successfully converting a decision into action. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Designing Beautiful Documents | “Create perfect documents with five easy techniques. Have you ever noticed that some documents look perfect? They have a certain polish, a certain style, that tells everyone who sees them that THIS was created by a professional? There is a science to creating beautiful documents. In this course, communications guru Jamie Gillenwater demonstrates the five techniques that anyone can use to create beautiful, professional, respectable documents.” | 0.5 | Fundamental |
| Developing Performance Goals & Standards: 01-The Value of Planning | Experience the importance of planning and developing goals for your team. | 1 | Intermediate |
| Developing Performance Goals & Standards: 02-Creating Performance Standards | Identify and set performance standards that are S.M.A.R.T. (specific, measurable, attainable, results-oriented, and time-framed). | 1 | Intermediate |
| Developing Performance Goals & Standards: 03-Your Path to Developing Performance Goals and Standards | Learn and apply the five-step process for setting and discussing team member performance goals. | 1 | Intermediate |

VectorSolutions™

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Developing Performance Goals & Standards: 04-Mastering Developing Performance Goals and Standards | Practice Developing Performance Goals and Standards in a full scenario situation. | 1 | Intermediate |
| Developing Performance Goals & Standards: 05-Developing Performance Goals and Standards Health Check | Test your ability to apply Developing Performance Goals and Standards concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Developing Your Leadership Style | Want to know all the details? Prefer to oversee? Like to be involved? Everyone has a different style, whether in dress and music or in leadership. In this course you will learn to identify your personal leadership style and how to incorporate your style into any role through the use of application exercises and a rich multimedia process. Knowing your style will allow you to be more effective in choosing team members, managing up or down, and in getting your own work done. | 1 | Intermediate |
| Digital Transformation: Benefits of a Digital Corporate Culture | When we talk about digital transformation, we usually think about the adoption of modern devices, changes in corporate processes, or the development of a new business model. However, we don't usually think about how the workforce will respond. Regardless of what industry the organization operates in, or what the current culture looks like, having a digital corporate culture can benefit an organization. This course will highlight some of these benefits. | 0.2 | Intermediate |
| Digital Transformation: Challenges Organizations Face by Not Embracing Technology | Some organizations view digital transformation as costly, unnecessary, time-consuming, and not worth the investment. Others admit to not being able to grasp the complexity of the technology. While these concerns are understandable, not embracing digital tools can create challenges for organizations. This course will highlight and discuss several of these challenges. | 0.2 | Intermediate |
| Digital Transformation: Five Ways a Digital Transformation will Alter Day-to-Day Operations | When integrating digital technology into a business infrastructure, its important to understand how it will redefine the organization from the inside out. A digital transformation is disruptive. The shockwaves it sends throughout the organization will be felt by executives, employees, business partners, customers, clients, and potentially the public at large. To better understand what changes an organization may face, this course will discuss five ways a digital transition will alter day-to-day operations. | 0.2 | Intermediate |
| Digital Transformation: Four Areas to Consider When Evaluating a Digital Transformation | "Digital transformation may mean rethinking things from the ground up and implementing digital technology where necessary. This might require a careful analysis of all areas to determine what systems will improve productivity and fuel corporate growth. To get started, here are four areas that organizations should consider: Communication. Productivity, Marketing, Security " | 0.2 | Intermediate |
| Digital Transformation: Four Steps to Implementing a Digital Transition | Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition its important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course. | 0.2 | Intermediate |
| Digital Transformation: Things to Consider Before Making Changes | All organizations need a digital transformation strategy. However, don't fall into the trap of thinking that this is accomplished by simply adding more technology. Before creating a strategy, it's important to consider the impact the transition will make both inside and outside the organization. This course will discuss four things to do before making changes. | 0.2 | Intermediate |
| Digital Transformation: What is Big Data? | Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course you'll learn what this means for businesses and how Big Data is already transforming different industries. | 0.2 | Intermediate |
| Digital Transformation: What is Blockchain? | Bitcoin, Ethereum and other cryptocurrencies made headlines in 2017 and 2018 and began disrupting commerce, finance, and currency in a variety of ways. The technology behind cryptocurrency is known as blockchain, and it has created fresh opportunities for businesses and financial institutions around the world. In this course you will learn about how blockchain works, why its gaining popularity, and how its being used in organizations today. | 0.2 | Intermediate |
| Digital Transformation: What is Digital Transformation? | Changes in technology continue to shape our day-to-day lives and alter the way we interact with the world around us. Changing technology has also prompted - and sometimes forced - organizations to restructure the way their business operates. These changes made by organizations to integrate developing digital processes is known as Digital Transformation. In this course, you'll learn more about what Digital Transformation is, and how its impacting almost every organization. | 0.2 | Intermediate |
| Digital Transformation: What is the Internet of Things? | We live in a connected world where devices can connect to the internet and send information to people, devices and systems. This network of connected things is known as The Internet of Things or IoT. In this course you will learn how the Internet of Things is evolving and explore the different areas where IoT is having the biggest impact. | 0.2 | Intermediate |
| Disabilities in the Workplace | A disability is defined as a physical or mental impairment that substantially limits one or more of a person's major life activities. Employers often struggle with how to respond and cope with workers with disabilities, but learning the basics about etiquette, as well as rights and responsibilities as outlined by the American Disabilities Act, or ADA, can make the situation better for everyone. This course describes the ADA, the benefits of hiring workers with disabilities, types of disabilities, reasonable accommodations, interviewing and etiquette, as well as how to prevent and deal with discrimination. | 0.5 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Discipline | Discipline is a course that provides participants with guidelines for preventing discipline problems and presents some techniques for dealing effectively with discipline problems when they arise. After completing this course, participants should be able to describe ways in which supervisors affect discipline in the workplace, reasons why discipline problems occur, ways of preventing discipline problems, ways of handling discipline problems once they arise, and the basic steps for using positive discipline and progressive discipline. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Discrimination in the Workplace | 100,000 charges of workplace discrimination are filed every year. Workplace discrimination is the unfair or illegal treatment of a person based on their race, color, religion, sex, national origin, age, or disability. Discrimination amongst employees can contribute to a hostile work environment and negative company culture, leading to lower efficiency and high employee turnover. This course raises awareness by discussing the civil rights laws protecting people from discrimination, the types of discrimination, and how discrimination can affect the workplace. | 0.25 | Intermediate |
| Discrimination Prevention | Discrimination is a big deal. Regardless if you are the one being discriminated against, the one doing the discriminating, or if you are seeing it happen around you, discrimination is real and it can be a serious problem. In 'Dealing with Discrimination in the Workplace' you will learn the steps to 1) help you recognize when discrimination is occurring, 2) identify how to acknowledge the situation, and then 3) know how to proceed to eliminate the problem. Through the use of application exercises and a rich multimedia process, you will gain the skills you need to truly identify, address, and deal with discrimination. | 0.5 | Intermediate |
| Diversity in the Workplace | Diversity is acknowledging, accepting, and respecting differences among people. These differences can include age, class, race, and gender. Companies can increase their creativity and openness to different ideas by building and encouraging a diverse workforce. This course covers the definition and benefits of diversity, the challenges in a diverse workplace, and how employees can be proactive and positive on a daily basis to promote the differences between workers. | 0.25 | Intermediate |
| Effective Delegation | LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them. | 3 | Intermediate |
| Effective Delegation: 01-What to Delegate | Learn and apply the delegation process to determine which tasks to delegate to team members (and to whom to assign each task). | 1 | Intermediate |
| Effective Delegation: 02-Issues in Delegating | See and practice the issues that arise in delegation discussions and how to effective handle them. | 1 | Intermediate |
| Effective Delegation: 03-Your Path to Delegating | Learn and apply the five-step process for delegating tasks to members of your team. | 1 | Intermediate |
| Effective Delegation: 04-Mastering Delegating | Practice Delegating in a full scenario situation. | 1 | Intermediate |
| Effective Delegation: 05-Delegating Health Check | Test your ability to apply Delegating concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Effective Discipline: 01-Taking Disciplinary Action | See and rate examples of disciplinary action and understand the importance of designing messages for the team member. | 1 | Intermediate |
| Effective Discipline: 02-The Disciplinary Process and Documentation | Learn the standard procedure for disciplining team members and practice focusing on team member behaviors in documentation. | 1 | Intermediate |
| Effective Discipline: 03-Responding to Team Member Reactions | Since team members often react negatively to discipline, practice how you will respond in these situations. | 1 | Intermediate |
| Effective Discipline: 04-Your Path to Effective Discipline | Learn and apply the five-step process for effectively disciplining a team member. | 1 | Intermediate |
| Effective Discipline: 05-Mastering Effective Discipline | Practice Effective Discipline in a full scenario situation. | 1 | Intermediate |
| Effective Discipline: 06-Effective Discipline Health Check | Test your ability to apply Effective Discipline concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Effective Presentation Skills | In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation. | 1 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Email and Messaging Safety | Email is the primary means of attack from cyber-perpetrators. This course provides an overview of cybercrime via email, and how to employ safe email and messaging practices to avoid and help prevent cyber threats, attempts at fraud and identity theft. | 0.25 | Fundamental |
| Email Basics | Almost 145 billion emails are sent every single day. They are easy to send and virtually instantaneous. Emailing has become one of the most common ways for people to communicate with friends and family, as well as co-workers and customers. While email is simple and familiar, there are important rules to follow to ensure that messages are clear, polite, and effective. This course will outline those rules so that every email sent is a professional one. | 0.5 | Intermediate |
| Email Etiquette | Email has long since replaced postal "snail" mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication. | 2.5 | Intermediate |
| Employee Discipline | Hate those awkward moments when you have to 'deal' with inappropriate or ineffective behavior? Make those moments an experience of the past by learning how to appropriately discipline an employee. With proper implementation of the skills taught in this course, you will find that those awkward moments are few and far between resulting in a better experience for everyone, as well as your overall results. | 1 | Intermediate |
| Employee or Independent Contractor: The Risk of Misclassification of Employees | "A growing number of workers are trading in the corporate hierarchy for the freedom to be their own boss. These independent contractors can be found in nearly every profession, from lawyers and business consultants to writers and yoga instructors. They set their own schedule and they enjoy a wide variety of work experiences, but they also pay their own taxes and secure their own health insurance. A problem arises, however, when employers misclassify workers who are employees under the law as independent contractors. Depending on the specific terms of the working arrangement with an independent contractor, such as hours worked, reporting structure, payment schedule, etcetera, you may be in violation of some very serious worker classification laws. In this interactive, online course, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors." | 0.5 | Fundamental |
| Energy Management Exercise, and Safety | Have time set aside, but no energy to use the time well? Learn the skills of managing your energy to find yourself getting more done and feeling better while you do it! Through the effective use of application exercises and a rich multimedia process, this course will take you on a journey of discovery to implement a workable plan to energize your life and get more done. | 0.5 | Intermediate |
| Essential Skills of Communicating: 01-Empowering Leadership Communication | Utilize an empowering and dynamic communication process to increase team members motivation and commitment. | 1 | Intermediate |
| Essential Skills of Communicating: 02-Craft Clear and Concise Messages | Construct and express clear and concise messages in both written and spoken communication. | 1 | Intermediate |
| Essential Skills of Communicating: 03-Deliver Messages Designed for the Team Member | Deliver messages that address the interests of the listener. | 1 | Intermediate |
| Essential Skills of Communicating: 04-Listen To Communicate | Use Reflecting, Probing, Supporting, Advising to demonstrate active listening to others. | 1 | Intermediate |
| Essential Skills of Communicating: 05-Manage Nonverbal Behavior | Make verbal and nonverbal communication congruent to reinforce the intent of messages. | 1 | Intermediate |
| Essential Skills of Communicating: 06-Impactful Feedback | Provide the rationale for your feedback, whether to reinforce or improve performance. | 1 | Intermediate |
| Essential Skills of Communicating: 07-Mastering Essential Skills of Communicating | Practice the skills learned in Essential Skills of Communicating in a full scenario situation. | 1 | Intermediate |
| Essential Skills of Leadership: 01-The Work of Leaders | Distinguish between leadership and management tasks and familiarize yourself with the Leadership Achievement Path. | 1 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Essential Skills of Leadership: 02-Focus on Behavior | Base discussions about performance and work habits on behavior rather than on personalities and attitudes. | 1 | Intermediate |
| Essential Skills of Leadership: 03-Maintain or Enhance Team Member Self-Esteem | Acknowledge contributions, results and accomplishments to enhance self-esteem. | 1 | Intermediate |
| Essential Skills of Leadership: 04-Encourage Team Member Participation | Involve team members in goal setting, problem-solving and decision-making. | 1 | Intermediate |
| Essential Skills of Leadership: 05-Lead Effective Meetings | Deploy meeting management skills to meet the goals of the meeting in the available time. | 1 | Intermediate |
| Essential Skills of Leadership: 06-Mastering Essential Skills of Leadership | Practice the skills learned in Essential Skills of Leadership in a full scenario situation. | 1 | Intermediate |
| Essential Skills of Leadership: 07-Essential Skills of Leadership Health Check | Test your ability to apply Essential Skills of Leadership concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Essentials of I-9 Compliance | "To many employers, a Form I-9 may appear to be a simple one-page piece of hiring paperwork. However, the one page Form I-9 comes with enough rules and regulations to fill a 69-page how-to manual, the M-274 Handbook for Employers. There are many common mistakes and human errors that can be made while completing and maintaining Form I-9 records. If an employer fails to complete or maintain I-9 documentation correctly, that employer may fall out of compliance and suffer harsh financial penalties. This interactive, online course contains valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce." | 0.5 | Fundamental |
| Ethics for Professionals | What are ethical guidelines and how do they apply to you in your professional field? Every day you face decisions that have ethical implications. While the welfare and safety of the public are everyone's primary concerns, time, personal and resource pressures can often challenge these commitments. Taking a pro-active approach to workplace ethics is the best course of action to mitigate this risk, avoid legal problems, and build a working atmosphere of integrity, trust and purpose. In this interactive online course, we will explore how to develop a strong and sustainable set of workplace ethics and guidelines designed to mitigate ethics creep, avoid legal implications, and build a solid, ethical foundation for a healthy workplace culture. We will explore common ethical topics and challenges and will detail the best practices when faced with thought provoking situations. We will also present the differences between a Code of Conduct and a Code of Ethics and how they can affect each professional differently. | 1 | Fundamental |
| Everyone is a Leader | For a time, the Disney company got some of its best ideas from the janitor. Leadership can be seen in any role and from any person. Using application exercises and rich multimedia, learn how to identify leadership potential and how to use the influence of unofficial leaders to everyones benefit. | 0.5 | Intermediate |
| Excel Basics for Mac | "Get Started with Microsoft Excel - The Most Useful Software Ever Created<br>Excel can do almost anything  crunch numbers, create lists, store data, edit budgets, and more. In this basics course well show you how to get started with Excel on a Mac, including using the most popular features.<br>Whether you're a first-time Excel user, or if you just want to re-learn the fundamentals, this course is for you!" | 2.25 | Fundamental |
| Excel for Project Management | "Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information. A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan." | 1 | Fundamental |
| Excel: Creating Dashboards | "Get More From Excel - Learn To Use Forms, Lookup Functions, Charts, PivotTables, and Slicers To Turn Data Into Answers. Crunching numbers is what Microsoft Excel does best - but how do you use those numbers to get the answers you need? This course will show you how to use advanced Excel features to turn massive amounts of data into visual, customizable dashboards. The ability to easily query and display information from your Excel data is a helpful tool for decision making, and this course will demonstrate five advanced Excel features (Forms, Lookup Functions, Charts, PivotTables, and Slicers) which will do just that." | 3 | Fundamental |
| Excel: Data Analysis With Pivot Tables | Get More From Your Excel With The Power Of PivotTables.  Pivot Tables are the perfect tool to analyze large amounts of data in Excel. Being able to summarize, visualize, and tabulate your data makes PivotTables an important skill for anyone who uses Excel to store and report on data, and in this course Microsoft trainer Kathy Jones will show you how to effectively use the PivotTable tools in Excel 2013 and 2016. | 2.5 | Advanced |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Excel: Introduction to PowerPivot | "Learn How To Transform Excel Into Your Big Data Power Tool. Power Pivot is an Excel add-in you can use to perform powerful data analysis and create sophisticated data models. With Power Pivot, you can mash up large volumes of data from various sources, perform information analysis rapidly, and share insights easily. In this course well show you everything you need to know in order to install and start using Power Pivot in Excel." | 1.25 | Fundamental |
| Excel: Power Functions | "Learn to Use the 10 Excel Functions Recommended by the Experts. Excel provides over 400 functions to perform a variety of calculations within your data. With this many functions, its guaranteed you're missing out on some powerhouse formulas that can make your day easier. This course explores 10 functions the experts recommend to expedite your data analysis." | 1 | Fundamental |
| Facilitating Meetings and Groups | LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals. | 7 | Intermediate |
| Financial Management 1: Negotiating Contracts | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end. This is the first chapter of the "Financial Management for the A/E/C Firm" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Financial Management 2 & 3: Pricing for Profits, Generating Cash and Getting Paid | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly.<br>This is the second and third chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 2 | Intermediate |
| Financial Management 4: Accounting & Cash | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow.<br>This is the fourth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Financial Management 5: Strategic Planning & Budgeting | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively.<br>This is the fifth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Financial Management 6 & 7: Financial Controls, Monitoring & Project Budgeting | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs.<br>This is the sixth and seventh chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Financial Management 8: Controlling Labor Costs | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Financial Management 9: Purchasing | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Fundamentals of Business Crisis Management | In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan. | 2.5 | Intermediate |
| Gender Identity: Changes Organizations are Making to Increase Awareness | Gender identity awareness is necessary to ensure equal respect and fair opportunities for everybody. So what does this mean for your organization? While every entity is unique and should consider the needs of their individual workforce, this course provides some basic steps you can take to better increase gender identity awareness. | 0.2 | Intermediate |
| Gender Identity: Understanding Gender-Neutral Restrooms in the Workplace | A gender-neutral restroom is, when we think about it, a simple idea. We use them in our homes without a second thought. However, in a workplace environment they are a topic of debate. This course will help you understand why gender-neutral restrooms matter and how they work. | 0.2 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Gender Identity: What does LGBTQIA+ mean? | When discussing gender identity and sexual orientation it's common to hear acronyms used to reference different groups, orientations, and identities. For several years, the most common acronym was LGBT, however to be more inclusive the acronym has evolved into many different forms. In this course we'll help you understand the pieces that make up the LGBTQIA+ acronym. | 0.2 | Intermediate |
| Get It Done: Managing Email | "Take Control Of Your Inbox!<br>For many people email is a source of stress, when it really should be a valuable productivity tool. In this course well show you how to combine email best practices with the tools in Microsoft Outlook in order to effectively manage your email." | 1 | Fundamental |
| Get It Done: Sharing Calendars | "How Do You Let Everyone Know Whats Going On? Its a common situation: you're working in an organization or department, and you need to share a calendar with your team. Whether its staffing schedules or company holidays, this course will demonstrate ten different ways you can share a calendar among your coworkers, including both physical (printed) and online calendars." | 1.5 | Fundamental |
| Get SMARTER with Goals | What is the difference between someone who simply has goals and someone who actually achieves their goals? The key isn't to work harder, it's to work SMARTER! The SMARTER goal setting system is the evolution of the SMART goal setting system that was introduced in the 1980's. In this course you will learn how to apply the S.M.A.R.T.E.R. goal setting system. You will understand the definition of each letter of the acronym S.M.A.R.T.E.R. and view real world examples of how it is applied to goal setting. In addition, you will have the opportunity to apply it to set your own goals and apply the methodology. Finally, you will be provided with additional strategies for achieving your goals. | 0.5 | Intermediate |
| Giving Feedback that Gets Results | Tired of giving feedback that falls on deaf ears? Learn how to give feedback that gets fantastic results with this effective leaders guide. Feedback can be much more than a criticism at the end of an event, in fact feedback can be both positive and negative and needs to be given not only strategically, but also consistently. Develop the skills to do exactly that through application exercises and a rich multimedia process. | 0.75 | Intermediate |
| Gmail Essentials 2015 | Power Your Gmail Account. Get The Maximum Benefit From All The Tools Gmail Has To Offer. Gmail Is One Of The Most Often Used, Under-Utilized Applications In The World. This Course Will Change The Way You Use Your Gmail Account - Guaranteed! | 2.25 | Fundamental |
| G-Suite Essentials (Google) | Learn How 11 Tools from Google Can Boost Your Productivity. G-Suite (aka Google Apps and Google Drive) is more than just cloud-based email. This powerful and popular cloud-based suite includes apps to help you illustrate, communicate, collaborate, and organize your work - or your life. In this course, we'll cover the top features you'll find in your G-Suite. | 2.25 | Fundamental |
| Healthy Practices: Nutrition, Exercise, and Safety | We all know it is important to have healthy habits in our lives, but there is a big difference between knowing, and doing. Through application exercises and a rich multimedia process, this course teaches simple strategies to help you implement simple daily practices that lead to a healthy life. | 0.5 | Intermediate |
| Hiring Practices | Is she married? Do we have to post externally? These and other potentially loaded questions often appear during discussions regarding hiring. It is vital to understand what is appropriate and what is not when hiring practices is the name of the game. However, more than simply providing information, this course will take you through application exercises and provide a rich multimedia experience so that you can immediately apply what you have learned to your current situation. | 1.25 | Intermediate |
| Improving Work Habits: 01-Performance Issue or Poor Work Habit? | Distinguish between a performance issue and a poor work habit, which require a different problem-solving process. | 1 | Intermediate |
| Improving Work Habits: 02-Describing the Work Habit | Practice describing the team member's poor work habit focusing on behavior and fact, not attitudes or opinions. | 1 | Intermediate |
| Improving Work Habits: 03-Keep Ownership with the Team Member | What you should say in the context of work habit discussions when team members try to deny responsibility for the poor habit. | 1 | Intermediate |
| Improving Work Habits: 04-How Would You Empathize? | Use empathy in your discussions is important for team member self-esteem and buy-in. | 1 | Intermediate |
| Improving Work Habits: 05-Your Path to Improving Work Habits | Learn and apply the five-step process for improving poor work habits shown by your team members. | 1 | Intermediate |
| Improving Work Habits: 06-Mastering Improving Work Habits | Practice Improving Work Habits in a full scenario situation. | 1 | Intermediate |
| Improving Work Habits: 07-Improving Work Habits Health Check | Test your ability to apply Improving Work Habits concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Increase Your Listening & Communication Power | Employees, Projects, and Even Entire Businesses Fail Because They Don't Communicate Effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible. | 1 | Fundamental |
| Increase Your Listening Power (Effective Communication) | Employees, projects, and even entire businesses fail because they don't communicate effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible. | 1 | Fundamental |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Internet and Computer Policy | As the internet grows, a touch of the screen can take you through boundaries previously only dreamed of. But do you know which boundaries it is okay to cross (or even encouraged) versus which to not even mention to you that now exist? Using application exercises and a rich multimedia process, this course will take you through basic internet protocol to keep you and your employees safe and focused. | 0.5 | Intermediate |
| Interpersonal Communication | Interpersonal Communication is a course designed to help supervisors apply the listening and speaking skills that are basics for good interpersonal communication on the job. After completing this course, participants should be able to describe three basic levels of listening, identify common mental habits that are barriers to effective listening, and describe how to use awareness of nonverbal communication to ensure effective interpersonal communication. They should also be able to describe common types of ineffective responses, explain what empathic responses are and how they can be used for effective interpersonal communication, explain what constructive feedback is and describe how it can be used for effective interpersonal communication, and describe techniques that can be used to deal with people who become emotional on the job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Interviewing Skills for Employees | What to wear? What to say? When to follow-up? The process of interviewing for a position can be nerve racking to say the least. Tell Me About Your Weaknesses takes you through a typical interview process and prepares you for the what you may encounter. Through application exercises and a rich multimedia process, you will learn top skills to ease your nerves and prepare you for any interview. | 0.5 | Intermediate |
| Interviewing Skills for Managers: Conducting an Interview | Can I ask this? Will she be a good fit? Who else should I invite to the interview? When you are on the other side of the table, there are still many questions to answer in order to have a good interview. Using application exercises and a rich multimedia process, you will learn the skills to conduct effective interviews in this timely course designed to help you get the right people in the right seats. | 0.5 | Intermediate |
| Interviewing the Right Way | "There is nothing more important in the hiring process than the interview. The interview is an exchange of information between the candidate and the interviewer. It provides the candidate with the opportunity to sell him/herself, and management with the opportunity to sell the position and the organization. The importance of selecting the BEST person for a position cannot be over emphasized. The interview provides an opportunity for you to brand your company in the eyes of the potential employee, and to determine if the candidate is the right fit. The interview is a crucial process, that if done correctly, will ultimately help move your business forward. But if done incorrectly, could be very damaging to your company. This interactive, online course will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position." | 0.5 | Fundamental |
| Interviewing the Right Way & Managing the Millenial (RV-PGM145) | The first module of this program will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. The second interactive module discusses how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun. | 1 | Fundamental |
| It's my Job! Career Growth | While you may have a boss and frequent interaction with HR (Human Resources) your career is YOUR career and therefore YOUR responsibility to manage. In this instructive course, learn key steps to identifying what you want out of your career and how to make it happen through application exercises and a rich multimedia process. | 0.5 | Intermediate |
| Lead with Strengths | It is common to focus on our weaknesses, however weakness will not make you excel. If you want to be an effective leader, it is important to focus on and learn to lead with your strengths. Everyone has strengths. Things they are naturally good at. Do you know your strengths and how they can help you to be an effective leader? This guide will teach you how to identify and lead with your strengths. | 0.5 | Intermediate |
| Leading Engaging Zoom Meetings | Maximize your meetings in Zoom. Meeting virtually doesn't have to be boring talking heads on a screen! If you know how to use the tools Zoom provides, you can lead engaging meetings where everyone can participate. Learn the settings you'll need to begin and the basics for sharing your screen, using whiteboards, annotation, and polls. Then, move into more complex meeting structures like breakout rooms for small group collaboration and how to manage them. End it with guidelines to heighten interest, participation, and engagement. | 1 | Intermediate |
| Management 101: 01-Introduction to Management | You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resistors to change. Overall, you will be better equipped as a new manager. | 1 | Intermediate |
| Management 101: 02-Leading and Communicating as a Manager | Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting. | 1 | Intermediate |
| Management 101: 03-Making an Impact as a Manager | Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact. | 1 | Intermediate |
| Management 101: 04-Taking Control as a Manager | Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department. | 1 | Intermediate |

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Managing a Millennial | "Millennials are the generation born between 1980 and 1994 who have been given a reputation that says they have an inborn distrust of hierarchy and bureaucracy, and are prone to job-hopping. But is this reputation actually true? To manage your Millennial employees, you must understand the group and how they compare to other generations before them. How to manage and motivate what some call the "trophy generation" is a hot topic of conversation and a concern for many businesses and managers. The good news is that millennials are like most people, they aim to have a job where they are valued, make an impact and develop their skills, all while being interested in what they do and being fairly paid for their effort. They want a secure job, but they aren't looking to make one job their life's work. This interactive, online course will discuss how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun. " | 0.5 | Fundamental |
| Managing a Work Group | Managing a Work Group is a course designed to familiarize participants with techniques for building and maintaining a high performance work group. After completing this course, participants should be able to describe how to work with group members to set performance goals, provide reinforcement for good performance, and build employee involvement in group activities. They should also be able to describe considerations associated with effective training, ways to diagnose performance problems, and techniques for practicing assertiveness. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Managing Complaints: 01-The Difficulties of Managing Complaints | Discover the difficulties of managing team member complaints and how to overcome these issues. | 1 | Intermediate |
| Managing Complaints: 02-Handling Complaints Using Active Listening | Use active listening skills to effectively handle team member complaints. | 1 | Intermediate |
| Managing Complaints: 03-Your Path to Managing Complaints | Learn and apply the five-step process for effectively handling complaints from your team members. | 1 | Intermediate |
| Managing Complaints: 04-Mastering Managing Complaints | Practice Managing Complaints in a full scenario situation. | 1 | Intermediate |
| Managing Complaints: 05-Managing Complaints Health Check | Test your ability to apply Managing Complaints concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Managing Contractors and Temporary Employees | In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department. | 3.25 | Intermediate |
| Managing Generation X | You have probably heard the term "Generation X" used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers. | 1 | Intermediate |
| Managing Stress at Work | Eu-stress and Di-stress. One positive, one negative. One can push us to new levels of achievement, the other can kill. In this course, learn the difference between positive and negative stress, and how to manage both to help you achieve the results you desire. Reduce the negative stress in your world by using application exercises and a rich multimedia process. Check process to identify pain points and take action to regulate the stress you experience. | 0.5 | Intermediate |
| Managing Technical Professionals | In LearnSmart's Managing Technical Professionals video training, managers are given a thorough overview of how to effectively lead technical professionals. You will cover material on the high-tech business environment to how to establish and maintain credibility. You will find discussions on how to keep technical professionals motivated. And how, when inspired, these dedicated individuals will help support a companies strategic objectives. But to do this, they need assistance from managers in identifying their career goals. Overall, you'll learn how to assist your organization and the technical professionals you manage in reaching and exceeding their goals. | 2.75 | Intermediate |
| Managing Up: Strengthening Business Relationships | Have a great rapport with your employees and your peers? You're not done yet! Learning how to manage up is a key component of any successful career. Through application exercises and a rich multimedia process, this course will teach you what you need to know to create positive relationships with those you report to. | 0.5 | Intermediate |
| Managing Yourself | Managing Yourself is a course designed to familiarize participants with techniques for making a smooth transition from worker to supervisor and with some tools that can make a supervisor's job easier. After completing this course, participants should be able to describe techniques for starting off on the right foot as a new supervisor. They should also be able to describe how to use tools such as delegation and time management. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Mastering Access 2016, Basics | "Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules. Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will walk you through building your first Microsoft Access database, including creating tables, using queries, and implementing forms and reports." | 3 | Fundamental |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering Access 2016, Intermediate | "Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules. Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will build upon the basics of tables, queries, forms, and reports covered in the Basics course. Starting with the basics of relational database design, this course will expand your knowledge of Microsoft Access by covering topics such as table relationships, query joins, subdatasheets, field validation, parameter queries, and more." | 2.75 | Fundamental |
| Mastering Excel 2016 | "The World Is Filled With Two Kinds Of People: A Handful Of People Who Are Masters Of Excel, And The Millions Of Others Who Wish They Were. If you've mastered Microsoft Excel 2016 then you have one of the most practical and valuable skill sets in all of modern business. A spreadsheet guru can work wonders - from organizing lists, to creating multi-layered, interactive reports, to revealing answers to business-critical questions like ROI, budget allocations, tracking expenditures, and more. This course covers everything you need to know about Microsoft Excel 2016, from the very basics to the most advanced features and functions. Note: This course covers all the objectives required in the Microsoft Office Specialist exam 77-727. This course includes all of the modules from the Basics and Intermediate courses, as well as 26 additional, more advanced, training modules." | 11.5 | Advanced |
| Mastering Excel 2019 - Advanced | "There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to use links, Lookup functions, Data Validation, Macros, data tables, and more." | 4.3 | Fundamental |
| Mastering Excel 2019 - Basics | "There are two kinds of people: Those who are masters at Excel, and those who wish they were<br>When you master Excel, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wondersfrom organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course is your first step towards becoming an expert at using Excel 2019." | 4.5 | Fundamental |
| Mastering Excel 2019 - Intermediate | "There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to manage data, charts, and tables, and how to use powerful tools such as Pivot Tables, Pivot Charts, Slicers, Timelines, and more. This is our most requested training course! If you learn to use Excel 2019 or Excel 365, you will start to see how useful it is in your life—from formatting your grocery list to calculating complex ROI values. If you are comfortable with the basics of Excel, let our Microsoft Certified Trainer, Kathy Jones, walk you through more advanced topics that will take your spreadsheets to the next level and help you to be more efficient in analyzing your data. Topics covered include: Working with named ranges Inserting functions Using advanced sorting and filtering techniques Inserting Tables, Applying advanced Conditional Formatting Inserting charts and graphics Applying advanced charting tools Working with Pivot Tables, Pivot Charts, Slicers, and Timelines" | 5 | Intermediate |
| Mastering Google Drive (2020) | "Learn to collaborate, store, share, and access your files any time from any device.<br>It's time to leave attachments behind. Google Drive is an accessible, secure, and free tool for collaborating, sharing, editing, and storing your files in the cloud. If you have a Google account, you already have a Google Drive! In this course, Google expert Laurie Sherrod shows you how to make the most of your Google Drive including all the tips and tricks that will make it easy and fast to get started. It's already integrated with other Google Apps like Gmail, Google Docs, and Google Sheets. By the end of this course, you will understand the purpose and features of Google Drive and be ready to use the application to store, edit, and share files and folders any time and from any device." | 1.25 | Fundamental |
| Mastering Microsoft Project 2016 – Part 1 | "In this course PMP and Certified Technical Trainer Christina Tankersley will familiarize you with the basic features and functions of Microsoft Project Professional 2016 so you can use it effectively and efficiently in your real-world environment. This course covers the critical knowledge and skills a project manager needs to create a project plan with Project 2016 during the planning phase of a project. In other words, if your manager assigns you to lead a project, this course will enable you to draft a project plan with Project 2016 and share it with your supervisor (and others) for review and approval." | 2.25 | Intermediate |
| Mastering Microsoft Project 2016 – Part 2 | "In this course, PMP and Certified Technical Trainer Christina Tankersley will demonstrate how to use the features and functions of Microsoft Project Professional 2016 to effectively manage your project plans.<br>This course covers the skills a project manager needs in order to manage a project plan created with Microsoft Project 2016. From updated task progress, work, and costs to creating reports, and including advanced topics such as sharing resources and linking project plans, this course covers everything you need to know in order to manage your projects using Microsoft Project." | 2.25 | Intermediate |
| Mastering Microsoft Teams (2019) | "Conversations, Channels, and Chatbots: Learn How To Get The Most from Microsofts New Communications Hub - Teams. The ability for teams to work together productively is perhaps the most important function in any business, and its the central focus of the new Microsoft Teams application.<br>From file sharing and co-editing to video calls, persistent chat, screen sharing, and more, learn how Microsoft Teams gives you the tools to stay in touch and get work done with your colleagues and partners.<br>Updated for 2019, this course includes new and updated material, including Shifts, Whiteboard, Praise, and Calls. We also discuss best practices for getting the most from your Microsoft Teams" | 5 | Fundamental |
| Mastering Office 365 (2018) | "Learn To Organize And Maintain Your Virtual Office Using Microsoft 365: The Powerful, Everything-You-Need-In-One-Easy-Bundle. Online Suite<br>Office 365 is far more than classic Microsoft Office. Easy, collaborative tools like OneDrive, Teams, Planner, and Forms combine with traditional Microsoft apps to form a powerful productivity-boosting tool - and in this course we'll show you how to tap into all the power Office 365 has to offer!<br>Updated for 2018 with all-new modules covering Microsoft Teams, Forms, To-Do, Stream, and Delve, with updates for Outlook online, navigation, Planner, and more - over 20 new and updated video lessons!" | 11 | Intermediate |
| Mastering OneNote 2016 | "Organize Your Work & Life Into Pages, Sections, and Notebooks!<br>OneNote is a powerful tool both for managing your own notes or idea, and for collaborating with others.<br>In this course trainer Kathy Jones will walk you through everything you need to know to be efficient with Microsofts incredibly popular note-taking platform." | 2.5 | Intermediate |
| Mastering Outlook 2016 | "From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master." | 6.25 | Intermediate |
| Mastering Outlook 2016 Advanced | "From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools.<br>This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master." | 3 | Advanced |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering Outlook 2016 Basics | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook<br>Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools.<br>This Course Is The First Step In Becoming An Outlook Master!" | 3.25 | Fundamental |
| Mastering Outlook 2019 - Advanced | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook<br>Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools.<br>This Course Teaches You to Make the Leap from Outlook User to Outlook Master!" | 2 | Advanced |
| Mastering Outlook 2019 - Basics | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook<br>Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be managed automatically or handled in a fraction of the timeif the Outlook user knew how to use the proper tools.<br>This Course is the First Step to Becoming an Outlook Master!" | 2.25 | Fundamental |
| Mastering PowerPoint 2016 | "Making PowerPoint 2016 Easy & Effective<br>Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged." | 8.25 | Intermediate |
| Mastering PowerPoint 2016 Advanced | Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 3.5 | Advanced |
| Mastering PowerPoint 2016 Basics | Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 4.75 | Intermediate |
| Mastering PowerPoint 2019 - Advanced | "Learn advanced features to get the most out of PowerPoint 2019 or PowerPoint 365.<br>Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made—not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged." | 5 | Fundamental |
| Mastering PowerPoint 2019 - Basics | "Making PowerPoint 2019 Easy & Effective. Using PowerPoint effectively is a crucial skill for any business professional. Whether it's designing a presentation for a meeting, creating a handout, or even creating and exporting a custom video, PowerPoint 2019 is a tool that everyone should feel comfortable using. In this Bigger Brains course, our PowerPoint guru Kelly Vandever walks you through the basics of getting started with PowerPoint 2019." | 4.75 | Fundamental |
| Mastering QuickBooks Desktop 2018 | Learn The Useful And Powerful Features And Tools In QuickBooks Pro, Premier, and Enterprise. Do you feel like you don't have time to learn how to use some advanced tools and functions in QuickBooks because you have other important work to do - like gathering or inputting data into QuickBooks? This course is a great way to get up to speed on QuickBooks 2018, with many time-saving lessons that can change the way you think about QuickBooks. | 3 | Intermediate |
| Mastering QuickBooks Online 2018 | Become A QuickBooks Online Guru. QuickBooks Online brings traditional QuickBooks accounting to a cloud-based solution, and this course will show you everything you need to know to manage your customers, vendors, invoices, bills, checks, and online payments through QuickBooks Online. | 4.25 | Intermediate |
| Mastering Word 2016 | "Learn Everything You Need to Know About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word, from the very basics to the most advanced features." | 9.75 | Advanced |
| Mastering Word 2016 Advanced | "Learn More About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word." | 2.5 | Advanced |
| Mastering Word 2016, Basics | Learn The Basics Of Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley, we'll show you everything you need to know to start harnessing the power of Microsoft Word. | 3.6 | Fundamental |
| Mastering Word 2016, Intermediate | Learn More About Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley we'll show you everything you need to know to start harnessing the power of Microsoft Word. | 2.5 | Intermediate |
| Mastering Word 2019 - Advanced | "Learn the powerful advanced skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on intermediate skills in Word 2019 or Word 365 to create more professional and effective documents." | 2.5 | Fundamental |
| Mastering Word 2019 - Basics | "Learn the Basics of Microsoft Word 2019Delivered in Easily Searchable, Highly Informative Content Lessons<br>Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer, Barbara, Evers, well show you everything you need to know to start harnessing the power of Microsoft Word." | 3.5 | Fundamental |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering Word 2019 - Intermediate | "Learn intermediate skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on basic skills in Word 2019 or Word 365 to create more professional and effective documents. Topics covered include: Working with tables and charts including performing calculations and linking to data in an Excel workbook Creating text styles, list styles, and table styles Applying document themes Inserting building blocks (Quick Parts) Using and creating templates, Inserting section breaks, columns, and linked text boxes Creating an index Creating a table of contents Creating a table of figures Creating an outline Creating a master document Creating a mail merge" | 2.75 | Intermediate |
| Meetings That Get Results | Frustrated with boring meetings that waste time? Never fear! This pivotal course will teach you how to shift from boring, ineffective meetings, to strategic meetings that get results! Through application exercises and a rich multimedia process, learn the specific components that make meetings worth the time and effort of everyone involved. But what if you are not in charge? Not a problem! This course will also take you through the steps and options to make meetings effective even when you are not the one conducting! | 0.5 | Intermediate |
| Microsoft Forms Essentials | "Learn How Microsoft Forms Makes It Easy to Collect Datavia Forms or Quizzes<br>Easily create online forms, surveys, and quizzes, and view the results as they come in with Microsoft Forms!<br>In this course well take a close look at all the features and benefits of this new Office 365 tool!" | 1.33 | Fundamental |
| Microsoft Lync Essentials | "Can You Hear Me Now? The Essential Guide To Communication & Collaboration With Microsoft Lync<br>Collaboration is the art of making 1 + 1 equal more than 2 - coworkers sharing ideas, working through challenges, and congratulating each other on successes is an important part of any successful business. How do you do that with today's distributed workforce? Microsoft Lync to the rescue!<br>This Course Will Teach You Everything You Need To Know To Chat, Call, Present, and Share With Microsoft Lync." | 1.25 | Fundamental |
| Microsoft Project 2013 Essentials Training | Microsoft Project 2013 is a desktop application used primarily by Project Managers to create and manage large or complex programs or projects. The objective of Microsoft Project is to manage your project easier. In this Essentials training course, you will be introduced to the user interface. You will learn how to create, execute, and close projects. This course will show you how to plan and create tasks as well as how to create resources and assign them to those tasks. This interactive online course wraps up with tips and tricks you can use to make Microsoft Project more efficient for you. | 2 | Intermediate |
| Microsoft Project 2013 Intermediate Training | | 2 | Intermediate |
| Microsoft Sway Essentials | Learn The Easy Way To Create Compelling, Modern Presentations With Microsoft Sway, For everyone who ever struggled to create an engaging presentation with PowerPoint, rejoice! Microsoft Sway is a unique and refreshing new way to create visually appealing, interactive presentations, and this course will walk you through getting started with your first Sway. | 1.25 | Fundamental |
| Microsoft Teams Essentials | "Learn To Collaborate and Communicate with Microsoft Teams<br>Many businesses are using Microsoft Teams to facilitate communication, collaboration, file sharing, and more. This mini-course covers everything you need to know in order to start using Microsoft Teams in just the first two modules (20 minutes)." | 1 | Fundamental |
| Microsoft To Do Essentials | "Organize Your Day Track Your To-Dos and Focus on Whats Important<br>The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks." | 0.5 | Fundamental |
| Modern React with Redux | This is the tutorial you've been looking for to master modern web development with React. Redux? We got it. ES6/Babel? Covered. Webpack? Included! Mastering React and Redux can get you a position in web development or help you build that personal project you've been dreaming of. It's a skill that will put you more in demand in the modern web development industry, especially with the release of Redux and ReactNative. This course will get you up and running quickly, and teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux. We'll start by mastering the fundamentals of React, including JSX, props', state', and eventing. Source code is provided for each lecture, so you will always stay up-to-date with the course pacing. After an introduction to React, we'll dive right into Redux, covering topics like reducers, actions, and the state tree. If you are new to React and Redux, or if you've been working to learn it but sometimes feel like you still don't quite 'get it', this is the React course for you! To learn React you have to understand it. Learn how to use React's custom markup language, JSX, to clean up your Javascript code. Master the process of breaking down a complex component into many smaller, interchangeable components. Grasp the difference between props' and state' and when to use each. Develop complex applications that scale in complexity by mastering Redux. Dive deeper into Redux by using middlewares. No fancy terms required! I've built the course that I would have wanted to take when I was learning React and Redux. A course that explains the concepts and how they're implemented in the best order for you to learn and deeply understand them. | 10.5 | Intermediate |
| Motivating Employees | How do you get your employees and team members motivated and actively engaged? According to the dictionary, you simply provide them with a need, desire, or reason to make a particular choice - or behave in a specific manner. Sounds simple, right? Unfortunately, motivating employees is much more than just offering the right prizes, bonuses, or incentives. To understand motivation, we'll first focus on making sure the foundational needs of your employees are being met, and then, look at what additional needs need to be taken care of to help them thrive. Finally, you'll learn how to assess the motivation level of your employees to better determine what types of programs, incentives, or changes should be put in place to effectively increase motivation within your organization. | 0.5 | Intermediate |
| Motivational Ethics | "**This course does not provide CEU or PDH credit** A lot of "good" people find themselves getting fired, or even getting arrested, and have to ask, "How did I end up here?"<br>You likely didn't wake up today and make a conscious decision to NOT steal a car or rob a bank. However, you already have made thousands of choices, and those choices will have an inevitable impact on your life, and the lives of others. This course shows how to recognize and understand HOW to be trustworthy, reliable, and honest in your professional and personal life.<br>What determines your future has everything to do with the choices you make. Understanding ethics can do more than help you decipher what is right or wrong. If you understand and apply the laws of ethics, then you can consciously make decisions that will inevitably lead you to become very successful." | 1.75 | Fundamental |
| Multigeneration Management: 01-Workforce Generations | At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace. | 1 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Multigeneration Management: 02-Leading Silents and Boomers | For todays managers, it is essential to understand the unique needs and work habits of the companies elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to Americas workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generation series, which contains courses dedicated to understanding each generations different behaviors, attitudes, and priorities. | 1.5 | Intermediate |
| Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next) | Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrows experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series. | 1.25 | Intermediate |
| Multigeneration Management: 04-Cross-Generational Teams | Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the fourth course. | 1 | Intermediate |
| Multigeneration Management: 05-Developing Generations | When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the final course. | 1 | Intermediate |
| Negativity in the Workplace | In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome. | 4 | Intermediate |
| Office 365 Groups Essentials | "Learn How Office 365s Powerful New Groups Feature Help Your Team Talk, Plan, And Collaborate<br>Microsoft Office has no shortage of ways for groups to work together. From simple spreadsheet sharing to social media tools like Yammer and Delve and collaboration platforms like SharePoint, Microsoft has provided plenty of tools to help people work as a team." | 1 | Fundamental |
| Office 365 Planner Essentials | Learn How to use Office 365 Planner to Organize Your Team in a Powerfully Simple Visual Format. The Planner tool in Office 365 is a powerful team management tool, providing features comparable to standalone project management apps but without the high price tag - in fact it's included free with most Office 365 Business plans. | 0.75 | Fundamental |
| OJT Mentor | On-the-job training programs can be very productive when properly structured. This course provides tips to help make people more effective OJT mentors, including explaining the structure of an OJT team, providing four questions to ask before training begins, stressing the importance of a training plan, giving tips for being a good mentor, explaining how to evaluate the OJT mentor and program, and more. | 0.5 | Intermediate |
| OneDrive Essentials (2016) | "OneDrive and OneDrive for Business Can Radically Improve Your Productivity Well Show You How!<br>Both OneDrive (the free, personal version) and OneDrive for Business (the corporate version included in most Office 365 plans) have the same mission: To let you easily access your documents and files from any device, anytime, and securely share them with others." | 1.5 | Fundamental |
| OneNote for Windows 10 Essentials | "The Structure You Need with the Flexibility You Want<br>OneNote is one of Microsofts unsung heroes: a digital notebook that allows you to organize your notes, meeting minutes, project documents, and moreall in one place. Its almost like having an old-school, three-subject binder except with unlimited sections and your notebook wont weigh down your bag like it might have in school. Plus, no one will have to copy your notes, because you can share them digitally to collaborate with others. Are you ready to get organized? Note: While many of the features are the same in other versions, this course is specific to the Windows 10 version of Microsoft OneNote." | 1.25 | Fundamental |
| Online Marketing 101 | "This Course Is A Must-Take For Anyone Who Wants To Drive In More Profits With From Your Online Business Generators. Youv'e heard of businesses making it big online, and others not making it at all and the difference is whether or not they can master online marketing techniques." | 1.5 | Fundamental |
| Outlook 2013: 01-Getting Started in Outlook 2013 | Outlook is a program that enables you to track all your communication with contacts, meetings or appointments, notes, and to-do lists in one place. Microsoft has offered this resourceful program for years, but released this version update to provide users with a sleeker and more efficient tool. Explore whats new in Outlook 2013 as you go over the basics. You'll explore the interface, discover customization options for the layout of Outlook as well as customization options within your messages. Communication is key to success. Therefore, you'll spend a portion of your time learning to work efficiently within the Mail section of Outlook. Overall, the topics covered will aid you in your preparations for Microsofts Outlook Exam 77-423. | 1.5 | Intermediate |
| Outlook 2013: 02-Message and Contact Management in Outlook 2013 | Outlook is your go-to resource for all tasks and projects associated with communication. Part of communication is knowing the appropriate channel to reach a contact. As a result, you must understand how to use the People tab in Outlook for your benefit. Alongside the discussion on Contacts, you will also spend time on organizing your mail as you look over folder and configuration options. Prepare for your Microsoft Outlook Exam 77-423 by learning the tools Outlook provides for mail organization, the various save options, and contact categorization. Explore all of Outlook 2013s available features and tools for email and contact customizations. | 1.5 | Intermediate |
| Outlook 2013: 03-Time and Task Management in Outlook 2013 | Through these discussions, you are preparing for Microsofts Outlook Exam 77-423. To be successful in this exam, as well as in the professional world, it is crucial that you know how to properly manage your time. Overall, the topics covered will aid in learning how to use Outlook tools to help with time management. The tools emphasized are those associated with the calendar, notes, journal, and tasks tab. In the end, you'll be able to share calendars, work with the scheduling assistant, forward calendar items, share meeting notes, and update to-do lists. | 1.25 | Intermediate |
| Outlook Online Essentials (2018) | "Communicate Anywhere With Outlook Online, the Web-Based App For Managing Emails, Calendars, and People. Sometimes you need a quick way to get to your "stuff" no matter where you are. Outlook Online, also called the Outlook Web App (OWA), is a convenient and powerful way to access your email, calendar, and contacts (People) from any web browser. Throughout this course, you will learn the main features and benefits of using Outlook Online from Office 365. The interface is very similar if you are using Outlook Online from your company as well." | 2.5 | Fundamental |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Password Security Basics | This course provides an overview of password security and management, including the basic principles of password security, the elements of a strong password, and strategies of how to create and maintain passwords. | 0.25 | Fundamental |
| Peer Checking | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Peer Checking human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Performance Management: 01-Preventing Performance Problems | The most effective method for managing performance problems is preventing them. As a manager, its important that you have the knowledge and tools used to prevent performance problems. To start out you'll concentrate on how to successfully hire people that will contribute to your organizations skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. You'll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 02-Identifying Performance Problems and Causes | Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. You'll also explore the role that personality plays in performance problems. You'll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 03-Feedback and Counseling | The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 04-Effectively Disciplining Problem Performance | Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. You'll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change. | 1 | Intermediate |
| Persuasion: The Art of Communication | All communication is persuasion! This course teaches you to communicate well and persuade effectively. There are many reasons why we communicate - to inform, to share our viewpoint, to educate, and to sell. Communications guru Barbara Evers would argue that all these forms of communication are in fact forms of persuasion. In this course Barbara Evers and Wofford Jones walk through tips and techniques to take advantage of when you need to communicate and persuade. | 1.25 | Fundamental |
| Power BI Essentials | Learn to create stunning reports with real-time data. In Microsoft's Power BI, you can connect to existing data to create modern data visualizations and reports. In this course, you will learn everything you need to know to design reports, charts, and dashboards and distribute them to your team. We will walk you through the process from install to publish. | 1 | Fundamental |
| Power Up PowerPoint | "Giving A Presentation? If You Want To Avoid Boring Your Audience To Tears, This Course Is A Must<br>Most Presentations Are Filled With Bullet Point Lists, Thick Paragraphs Of Text, And The Occasional Picture In A Desperate Attempt To Break Up The Monotony ... but you can do better than that! This course shows you ways to turn standard content into something that's ACTUALLY INTERESTING to your audience.<br>Taught by presentation skills guru Kelly Vandiver and TEDx speaker Dr. Rebecca Heiss, Power Up PowerPoint will show you how to "power up" your next presentation!" | 2.75 | Intermediate |
| Powerful Presentations | Audiences decide if a presentation is worth paying attention to in the first 1-2 minutes. To be an effective presenter, there are multiple factors to consider and skills to develop. In this course, through the use of application exercises and a rich multi-media process, you will learn the key skills to creating powerful presentations that get results. | 0.5 | Intermediate |
| Pricing as a Professional | This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Problem Solving | Problem Solving is a course designed to familiarize participants with a basic process that can be used to solve almost any type of problem in the workplace. After completing this course, participants should be able to define a problem and the goal for its solution. They should then be able to work their way through the basic problem solving process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Procedure Use and Adherence | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Procedure Use and Adherence human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Project Management Essentials | Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations. | 2 | Fundamental |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Protecting Your Team Against Workplace Violence | Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents. | 1 | Fundamental |
| Protection Against Malware | Malware is a primary means of attack for cyber-perpetrators. This course provides staff members with an overview of basic protection against malware. Topics include: the types of malware, how malware works and protective strategies | 0.25 | Fundamental |
| Providing Performance Feedback: 01-The Power of Performance Feedback | Discover when to give performance feedback to team members and what sources to use for information. | 1 | Intermediate |
| Providing Performance Feedback: 02-Providing Verbal Performance Feedback | Practice providing verbal performance feedback to team members using key concepts in the course. | 1 | Intermediate |
| Providing Performance Feedback: 03-Providing Written Performance Feedback | Learn how to provide effective feedback in writing to empower team members. | 1 | Intermediate |
| Providing Performance Feedback: 04-Your Path to Providing Performance Feedback | Learn and apply the five-step process for providing timely performance feedback to a team member. | 1 | Intermediate |
| Providing Performance Feedback: 05-Mastering Providing Performance Feedback | Practice Providing Performance Feedback in a full scenario situation. | 1 | Intermediate |
| Providing Performance Feedback: 06-Providing Performance Feedback Health Check | Test your ability to apply Providing Performance Feedback concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial | In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness. | 1 | Fundamental |
| Resolving Conflicts: 01 - Characterizing Conflict | Discover the four stages of conflict and the impact that unresolved conflict can have on an organization. | 0.25 | Intermediate |
| Resolving Conflicts: 02-Know Your Conflict Behavior | Establish a collaborative conflict resolution process to encourage team member collaboration in conflict situations. | 1 | Intermediate |
| Resolving Conflicts: 03-Identifying Conflict Behaviors | Identify the conflict behavior exhibited in order to properly handle the conflict. | 1 | Intermediate |
| Resolving Conflicts: 04-Your Path to Resolving Conflicts | Learn and apply the five-step process for resolving a conflict between two or more team members. | 1 | Intermediate |
| Resolving Conflicts: 05-Mastering Resolving Conflicts | Practice Resolving Conflicts in a full scenario situation. | 1 | Intermediate |
| Resolving Conflicts: 06-Resolving Conflicts Health Check | Test your ability to apply Resolving Conflicts concepts in this skills-based scenario assessment. | 1 | Intermediate |

VectorSolutions™

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Rewarding Peak Performers | Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the business bottom line. | 1.5 | Intermediate |
| Rules for Discussing Politics at Work | It's natural to chat with colleagues at work and there's not necessarily anything wrong with a little back-and-forth about political issues. However, those conversations have the potential to go wrong pretty quickly if everyone does not stick to some basic standards. This lesson provides five rules to help keep things civil when having political discussions. These rules can help your team keep from creating an uncomfortable atmosphere when the topic of politics comes up. | 0.2 | Intermediate |
| Sales 101: Appointment Making | "The first step in being a successful salesperson is to have someone to sell to. In this course, professional Sales Trainer Marisa Pensa walks you through the basics of getting sales appointments, including:<br>What to say (on the phone or in person) What to NOT say (on the phone or in person) How to make effective phone calls Knowing your numbers" | 1.25 | Fundamental |
| Salesforce Essentials | "Everything you need to know to start using Salesforce today. If your company has started using Salesforce.com and you need to get up to speed, this course is for you. In this course, Certified Salesforce Administrator, Mia Huffman, walks you step-by-step through using Salesforce for the first time. By the end of this course, you will be able to start using Salesforce to manage leads, accounts, contacts, and opportunities and track your sales activity against these objects." | 1.25 | Fundamental |
| Saving Time in Outlook | "From timewaster to productivity booster: change the way you use Microsoft Outlook. Outlook is packed with great tools but there a few that can make a tremendous difference in your efficiency. With the automating features, tasks that you do on a regular basis that can take time will become simpler and faster. Topics covered include:<br>Using Quick Steps Creating reusable text, searches, and rules to automate things you do often.Using color, rules, and the task list to highlight and make email easier to manage and organize This course is the first step in Mastering Outlook. You will be sure to want to find out more about how Outlook can help you find more hours in your week!" | 0.5 | Fundamental |
| Self-checking (STAR) | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will learn to use STAR, a self-checking human performance tool, to enhance your ability to minimize errors, reduce the frequency of events, and reduce the severity of events. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Seven Basic Quality Tools | The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses. | 0.25 | Intermediate |
| Sexual Harassment Awareness | In 2010, more than 11,000 sexual harassment claims were filed with the United States Equal Employment Opportunity Commission (EEOC). The EEOC states that it is illegal to harass a person (an applicant or an employee) because of that persons sex. Sexual harassment can include unwelcome sexual advances, requests for sexual favors, and other verbal or physical harassment of a sexual nature. This course defines the term sexual harassment and explains the different forms it can take. It also delves into the negative effects sexual harassment has on both an individual and on the workplace as a whole, and suggests appropriate responses to sexual harassment. | 0.25 | Intermediate |
| SharePoint for Site Owners | "Learn to Create and Manage Your Teams SharePoint Site in Less than 90 Minutes<br>Now more than ever, SharePoint is a powerful and user-friendly tool for creating a common place where your team can share documents, collect data, and collaborate. In this course, you'll quickly learn how to create your own site and invite your team members.<br>SharePoint expert, Kat Snizaski, walks you step-by-step through creating a parent site and adding subsites for multiple teams. You'll learn how to create and manage document libraries and custom lists that enable collaboration. You'll also learn how to assign user permissions and get your team rolling on their new collaboration platform!" | 1.5 | Fundamental |
| Sharepoint Online Essentials | "Share Files and Post Information For Your Team with SharePoint Online<br>SharePoint is the behind-the-scenes backbone of Office 365, but the SharePoint Online app has its own benefits. In this course, IT guru Chip Reaves demonstrates how to use SharePoint Online to create shared resources, including a shared document library, and to create internal websites to share information with your team." | 0.75 | Fundamental |
| Skype for Business Essentials | Chat, Call, And Videoconference With Ease Using Microsoft's Business Communication App! Skype for Business is an incredibly powerful communications tool, used for everything from simple chat conversations to webinars for 10,000 people, and can even replace a business's phone system. | 0.3 | Fundamental |
| Smart Business Writing: 4 Stages to Writing Your Best | "Some people thinks that in the grand sceheme of things, excellence in writing isn't all that important as long as you get the General idea accross. But the sentence above is a perfect illustration of why that simply isn't true: Did it make you wary to see that the first sentence of a course intended to teach you writing tips was full of errors? Good writing gives you and your ideas authority, visibility, and stature. Bad writing, on the other hand, can make readers question your credibility and/or expertise, can be costly to a business, and can even damage the career of the writer. Inefficient, unclear, misleading, irrelevant, sloppy or deceptive written communication costs companies across the board billions each year. This course will help you improve your skills and avoid careless errors by focusing on four stages of writing: preparing, planning, drafting, and editing (revising and finalizing)." | 1 | Intermediate |
| Smart Business Writing: Emails & Technical Proposals (RV-PGM139) | "This interactive online course is presented in two modules:  How to Write Powerful & Persuasive Emails, Tackling the Technical Proposal.  This course covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. The second lesson discusses writing business and technical proposals and focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read." | 1 | Intermediate |
| Smart Business Writing: How to Write Powerful & Persuasive Emails | "Writing an email is the same as any other form of correspondence, only faster and a lot less formal, right? Wrong. Almost every professional today is faced with the seemingly simple task of writing emails but there are specific considerations that apply to email that we should always consider before we hit "Send." This 1/2-hour online interactive course from SmartTeam teaches you the specifics for using electronic mail to focus and present information effectively. It covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. You'll also learn what the differences should be between composing an email that "tells" information and email that "sells"; how to use the Pyramid writing plan for maximum efficacy in getting your message across, and perhaps the single most paramount rule in email writing: Pause before you hit Send!" | 0.5 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Business Writing: Short, Sweet and To-the-Point Reports | If the skills you'd acquired by the time you wrote your last book report for school aren't cutting it for you in the business world, this course can teach you what you need to know. Almost every professional has to write a short report at some point in his or her career, and despite the fact that it doesn't have to be "long," it can still be daunting - especially if you don't like writing. This interactive online course will teach you to use the simple and extremely effective Pyramid method of writing to create the most common types of reports professionals will be faced with in their careers. | 1 | Intermediate |
| Smart Business Writing: Tackling the Technical Proposal | "Proposals are an integral part of the professional world. Proposal topics can range from a request for more department funding to a plan for redesigning a highway. Regardless of the subject, proposals are intended to persuade. A poorly written or dull document that doesn't present the critical components in logical order can mean your presentation or request is brushed aside or not taken seriously. This 1/2-hour interactive online course on writing business and technical proposals focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. Once you have successfully completed this SmartTeam course, you will have the tools to significantly improve your proposal writing skills and help ensure the success of your company." | 0.5 | Intermediate |
| Smart Business Writing: Writing Effective Emails | "In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language. " | 0.5 | Intermediate |
| Smart Certificate: A Comprehensive Sales Program | "In this comprehensive sales certificate you'll get everything you need so you can start making sales fast. You'll learn how to approach cold calls, create winning phone scripts, how to identify qualified prospects and most importantly how to close the sale. Additionally you'll get a course on B2B sales as well as a course on the complete sales cycle. Whether you are a seasoned pro or a budding sales superstar this comprehensive sales certificate has everything you need to start selling today. The courses contained in the certificate are:<br>Smart Sales 1: Understanding the Psychology of SalesSmart Sales 2: Naming the Decision Maker & Setting AppointmentsSmart Sales 3: Holding Appointments & Advancing the SaleSmart Sales 4: Dealing with Objections & Closing the SaleSmart Sales 5: Business-to-Business SalesSmart Sales 6: The Sales Cycle" | 3 | Fundamental |
| Smart Customer Service 1: Courtesies, Attitude, and Ethics | You are the face of your business; therefore, your company depends on you to present yourself well at all times. This interactive online course is designed to help you understand how to do that. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. | 0.5 | Intermediate |
| Smart Customer Service 2: Listening for Understanding | As a frontline employee you are the primary source of communication between your company and its customers. You can improve your ability to interact well by developing listening skills. When you hear and interpret a message correctly, you will be able to understand your customers' requests and that is the key to handling each and every customer successfully. This interactive online course is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone. | 0.5 | Intermediate |
| Smart Customer Service 3: Effective Verbal and Nonverbal Communication | Communication is the give and take exchange of information; therefore, effective verbal and nonverbal skills are crucial to understanding your customers completely. In the previous course in this series, you learned about listening for understanding, or the taking of information. In this course you will learn how to give information effectively by speaking well and using your nonverbal signals to enhance your message. This interactive online course is designed to help you improve your communication skills when you are the sender of the message, whether you handle customers face-to-face or by telephone. | 1 | Intermediate |
| Smart Customer Service 4: 3 Steps to Successful Customer Interaction | In this lesson you will learn how to combine the basics of customer service that will help you interact well with your customers: how to present yourself well, listen for understanding, and communicate effectively to complete your customer interactions successfully. Every customer interaction involves three important steps that need to be completed in order to satisfy customers. This interactive online course is designed to help you to fully understand these three steps so that you will complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options. | 0.5 | Intermediate |
| Smart Customer Service 5: Handling Customer Complaints | This interactive online course is designed to help you understand why customers may complain, uncovers the special skills needed for handling customer complaints, and teaches an easy to learn step-by-step method for handling these types of customer contacts. At the end of this course you will apply the skills to your work environment to successfully handle any customer in any situation. | 1 | Intermediate |
| Smart Customer Service: Courtesies, Attitude, Ethics and Listening for Understanding | This two part course discusses Smart Customer Service. Part One is designed to help you understand how to present yourself well at all times. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. Part Two is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone. | 1 | Fundamental |
| Smart Customer Service: Courtesies, Listening for Understanding for Successful Customer Interaction (RV-PGM140) | This interactive online course is presented in three modules: Courtesies, Attitude, and Ethics Listening for Understanding 3 Steps to Successful Customer InteractionYou will learn how to combine the basics of customer service, how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. It will also help you improve your listening skills, and teach you to complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options. | 1 | Intermediate |
| Smart Finances: Creating a Budget that Works for You | "A budget can be a very effective financial tool. If used correctly, it can help you determine where your finances are, and forecast where they need to be. With the economy chugging slowly toward recovery, it's important to get a handle on your spending so you can make the best choices when allocating your money.<br>A good budget plan is one that makes sense to you, and one that YOU KNOW you will be able to maintain. This interactive online course will help you take a step towards doing just that. By discussing best practice methods and methodologies that have proven fruitful for many formerly harried individuals, you will learn tested strategies for establishing and maintaining a budget that works for you." | 1 | Intermediate |

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Health: Best Practices to Help You Quit Smoking | "According to the Centers for Disease Control and Prevention, cigarette smoking accounts for approximately 443,000 deaths every year in the United States—roughly one out of every five people. It is the leading cause of preventable death among Americans, yet an estimated 46 million U.S. adults continue to smoke, and an alarming number of young adults and teens are following suit. Quitting smoking is the single best thing you can do to protect and improve your health and the health of those around you, and those who are able to quit greatly reduce their risk for heart disease, stroke, cancer and other tobacco-related health illnesses. Although quitting isn't easy, it is possible with the right combination of knowledge, support, and aids/ medications. This interactive online course provides the latest in evidence-based research on proven practices and coping strategies to help you quit smoking. All the information is presented in an easy-to-follow format that will walk you through the key elements you need to quit smoking forever." | 3 | Intermediate |
| Smart Health: Child Nutrition - How to Avoid/ Prevent Childhood Obesity | Childhood obesity is alive and real. In fact, it is triple the rate from just one generation ago. While there are several causes of obesity in today's youth, the possibilities for prevention are literally endless! By teaching your child how to make healthier food choices and encouraging active play (yes, play!), you can help him or her grow into a fit and healthy adult. What a gift! | 1 | Intermediate |
| Smart Health: Drinking Responsibly | Drinking responsibly has a number of benefits, such as stress reduction, enhanced mood and improved mental health, the experience of pleasure, increased creativity, social benefits, and positive effects on quality of life. Your ability to drink responsibly depends on genetics, age at which you started drinking, culture, family environment, and mental health. This interactive course provides you with tips for drinking responsibly, as well as what drinking responsibly involves, and does not involve.. | 1 | Intermediate |
| Smart Health: Eating Right | In a world of fad diets, quick fixes and fast food, eating right and staying healthy can be a real challenge. The goal of this course is to give you all the tools you need to get all the good nutrition your body requires to maintain a lifetime of health and wellness. If you want to shed unwanted pounds, you can use these guidelines to reduce your caloric intake, increase your activity and reduce your consumption of fat and sodium in the process. | 1 | Intermediate |
| Smart Health: HIPAA Privacy Standards for Everyone | "We all have personal health information, and many of us are responsible for the health and personal information of others. Most of us agree that information should be private and therefore, protected. The HIPAA Privacy Standards were created for that purpose. Criminal charges can be brought against anyone in healthcare who is not in compliance. You can be knowledgeable and better protected by being familiar with these standards. This interactive course gives you definitions and ways to recognize non-compliance. We'll discuss how to protect private health information and we'll give you examples of situations you could face and how to handle them correctly." | 1 | Fundamental |
| Smart Health: Managing Your Cholesterol and Blood Pressure | Are you one of the 1 in 3 adults suffering from high blood pressure or high cholesterol? If left untreated, both can cause serious harm to your health—including heart disease and stroke! Did you know there are simple, painless steps you can put into practice today to improve your numbers? The power to achieve a healthier body is in your hands! | 1 | Intermediate |
| Smart Health: Physical Fitness - Choosing an Exercise Plan That's Right for You | Every time you turn around it seems that there is a new fad, diet, or piece of exercise equipment on the market. With so many things to choose from, how do you know where to begin? The goal of this course is to introduce you to the basics of exercise, and provide you with a program that will help you take that first step toward fitness. We will look at the physical and mental benefits of excise, and discuss how to create a successful exercise program that you can use to get started. | 1 | Intermediate |
| Smart Health: Proper Posture and Breathing | "Poor posture, typically defined as having excessive curvatures of the spine, slumped shoulders and a forward projecting chin, are common ailments in today's society. Improper posture inhibits proper breathing patterns by limiting the room the diaphragm has to push down into the abdomen to make room for the lungs. And breathing is one of the basic requirements of life; it is the first thing we do when we are born and the last thing upon death. Each minute, the average person breathes 12 times, inhaling oxygen and exhaling carbon dioxide. These processes are controlled by the autonomic nervous system and unless you are actively listening to or watching for breathing, you are essentially unaware of it." | 1 | Intermediate |
| Smart Health: Sleeping - How to Ensure You Are Well-Rested & Energized | "Do you take sleep for granted? Many of us can fall asleep quickly anywhere while others struggle. If you want information about proven tools for getting the rest you need, this is the course that will supply your wish list. You will get foundational information, myth busters, and facts. You will also receive tools and methods from experts to use in your individualized solution for a good night's sleep." | 1 | Intermediate |
| Smart Health: Yoga & Meditation - Finding your Inner Chi | "Yoga is a form of exercise that can be used to reduce stress in our lives. Benefits include improving posture, learning better breathing and relaxation techniques, and balancing the ""Chi"" using exercise. In this course, you will learn ways of finding stillness, the 7 chakras, and the meditation techniques associated with each." | 1 | Intermediate |
| Smart Leadership: Leaders, Model the Way (RV-PGM141) | "This interactive online course is presented in two modules:<br>Smart Leadership: What Leaders Do Smart Leadership: Model the Way<br>Introducing the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage and uses actual case examples from real people who have achieved remarkable success. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you." | 3 | Intermediate |
| Smart Leadership: Leadership Qualities (PGM142) | This interactive online course is presented in two modules: Smart Leadership: Inspire a Shared Vision Smart Leadership: Encourage the Heart "Inspire a Shared Vision," will help you learn to communicate your vision clearly and enlist others in making this dream a reality. In "Encourage the Heart." you'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. | 3 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Leadership: Part 1 - What Leaders Do | "Extraordinary results can occur in an otherwise ordinary setting, and the objective of this course is to help you to create the conditions that lead to those results. Leadership development is ultimately self-development, and this series of SmartTeam courses will help you meet that daily challenge. Leadership is not the private reserve of a few charismatic men and women - it is a process that ordinary people use when they are bringing forth the best from themselves and others. This series will inspire you to create a workplace that rejoices in celebration and encourages the best efforts from everyone. This interactive online course introduces the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage for the remaining courses in the series and uses actual case examples from real people who have achieved remarkable success. You'll also find out what four qualities - from among 225 traits - people consistently look for in a leader they would willingly follow. This course series is adapted from the extensively researched and highly respected book, The Leadership Challenge, by James Kouzes and Barry Posner. It is recommended that you take this course before attempting later courses in the series. " | 1.5 | Intermediate |
| Smart Leadership: Part 2 - Model the Way | "What do Abraham Lincoln, Martin Luther King Jr., Susan B. Anthony, César Chávez, the Dalai Lama, Eleanor Roosevelt, Mother Teresa, and Archbishop Desmond Tutu have in common? They all have, or had, strong beliefs about matters of principle and an unwavering commitment to a clear set of values. They all are, or were, passionate about their causes. Another thing they have in common is that while each of these people may have quoted someone else from time to time, they are all people who are more often quoted themselves. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you. And people most admire those who best articulate the principles they believe in. You can begin to achieve these aims by exploring the first of the five practices of exemplary leadership: "Model the Way." This is the second in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |
| Smart Leadership: Part 3 - Inspire a Shared Vision | "When the byproducts of a Ben & Jerry's ice cream plant overloaded a local waste treatment plant and nearly had to shut down, administrative assistant Gail Mayville found an unorthodox solution that saved people's jobs, kept the plant open, and jump-started a new and rewarding career. What Gail and thousands of other leaders share is the characteristic of being forward-looking - of being concerned not just about today's problems but also about tomorrow's possibilities. They see something out ahead, vague as it might appear from a distance, and they imagine that extraordinary feats are possible and that the ordinary could be transformed into something noble. Find out how Gail solved the problem - and why leaders need to be able to look beyond the present moment to see an ideal version of the future. This SmartTeam course - which focuses on the third principle, "Inspire a Shared Vision," will help you learn to communicate your vision clearly and enlist others in making this dream a reality. This is the third in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |
| Smart Leadership: Part 4 - Challenge the Process | ""If you keep your eyes open and periodically actually shut your mouth, and you have the courage to turn the mirror around on yourself, it's amazing what you can learn and how you can change things." - Dick Nettell, corporate services executive for the Bank of America. The leaders whose stories we excerpt talk about times when they turned around losing operations, started up new plants, developed new products or services, installed untested procedures, renewed operations threatened with closing, or released the creative spirit trapped inside stifling bureaucratic systems. The personal-best leadership cases were about radical departures from the past, about doing things that had never been done before, about going to places not yet discovered. In many cases, the magnitude of results was in the hundreds of percent. In this SmartTeam course, "Challenge the Process," you'll see how leaders understand that change is a constant, and proactive individuals seize the moment and use times of change to create something better than previously thought possible. This is the fourth in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 2 | Intermediate |
| Smart Leadership: Part 5 - Enable Others to Act | "In the thousands of cases the course authors studied, they did not encounter a single example of extraordinary achievement that occurred without the active involvement and support of many people. Nor was there a single instance in which one talented person - leader or individual contributor - accounted for most, let alone 100 percent, of the success. Throughout the years, leaders from all professions, from all economic sectors, and from around the globe continue to say, "You can't do it alone." Leadership is not a solo act, it's a team effort. This part of the series will teach you about the importance of fostering collaboration (and the methods for doing so), along with ways to empower and strengthen your team. This is the fifth in a series of SmartTeam courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner. " | 2 | Intermediate |
| Smart Leadership: Part 6 - Encourage the Heart | "Most people rate "having a caring boss" even higher than they value money or fringe benefits. In fact, how long employees stay at a company and how productive they are there is determined by the relationship they have with their immediate supervisor. This segment in the Leadership Challenge Series covers the last - but in no way least important - practice of exemplary leadership, "Encourage the Heart." You'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. Exemplary leaders keep four essential points at the fore: focus on clear standards, expect the best, pay attention, and personalize recognition. Learn how to put these points into practice to stimulate and motivate each individual on your team! This is the sixth and last in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |
| Smart Management: Methods for Motivating and Mentoring Your Team | Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company. | 2 | Intermediate |
| Smart Management: Business Essentials | "You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind." | 2 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Management: Coaching for Better Performance | There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as "The Boss" and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a "coach." Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan. | 1 | Intermediate |
| Smart Management: Data Security | Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information. | 1 | Intermediate |
| Smart Management: Discrimination in the Workplace for Managers | As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination. | 1 | Intermediate |
| Smart Management: Effective Performance Review Practices | Studies show that well over 90% of organizations engage in a formal employee Performance Review (or Appraisal) Process, but the practice is highly varied between companies - and sometimes within a single company - in both the way it is conducted and its effectiveness. In fact, Performance Review is often dreaded by both managers and employees. One reason is that managers often lack skill in objectively evaluating and providing useful feedback to employees. The purpose of this interactive online course is to equip managers to engage in effective employee performance reviews that will help employees understand and maximize their performance. We will also show how employees can best participate in the process. When done effectively, the Performance Review will have a positive impact on the motivation and performance of employees and their managers and will benefit the entire company. | 2 | Intermediate |
| Smart Management: Equal Employment Opportunity and Diversity for Managers | As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce. | 1 | Intermediate |
| Smart Management: Getting the Most out of a Multigenerational Workforce | Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them "tick".This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just "well" but "with excellence". | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Customer Service | Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position. | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Sales | "Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position." | 1 | Intermediate |
| Smart Management: How to Handle Workplace Challenges | "Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles." | 1 | Intermediate |
| Smart Management: Key Skills for Managing & Coaching Your Team | Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, "Take Care of Yourself." | 0.5 | Intermediate |
| Smart Management: Lawful Hiring Practices | The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts. | 1 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Management: Lawful Termination Practices | "There comes a time for every manager when they are faced with the need to terminate an employee. The difficulty comes with ensuring that the company is in a position that prevents any liability on their part for that termination. Unfortunately in today's legal climate, wrongful termination suits are the number one labor lawsuit brought before the courts. The judicial system sees many of these cases, especially when economies experience a downturn and employees struggle to keep their jobs. This interactive online course outlines the criteria for legal termination, and explains how to ensure your company is prepared. Proper procedures need to be in place, and managers need to be knowledgeable of employment laws and the consequences for wrongful termination." | 0.5 | Intermediate |
| Smart Management: Managing a Geographically Distributed Workforce | "It is becoming increasingly rare in today's business climate for all team members to be located centrally or working from a single office. Whether it is satellite offices, team members working at home, or offsite third party vendors, the workforce of today is more than likely dispersed among a variety of offices in separate locations. In this interactive online course, we will examine the factors that necessitate a remote and often globally distributed workforce. We will also discuss best practices for managing offsite teams and pitfalls to avoid in the process. " | 0.5 | Intermediate |
| Smart Management: SMART Goals - Setting Effective Targets for Success | Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success. | 1 | Intermediate |
| Smart Management: Successfully Transitioning from Team Member to Manager | "Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader. During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed." | 1 | Intermediate |
| Smart Management: The Art & Science of Delegation | "Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tell us when others can do needed activities, faster, cheaper, and better than we can ourselves. The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects." | 1 | Intermediate |
| Smart Mental Health: Core Values and Finding a Purpose in Life | "If you ever felt uncomfortable in a relationship or out of place in your company but didn't know why, it could be that the person or the corporation has core values that are different from yours. If this situation sounds familiar, or if you'd like to know more about values and how to get clearer on your life's purpose, then this is the course for you. We will guide you to define your core values and your life's purpose, and explore practical ways to create a personal and professional life in harmony with the inner you." | 1 | Intermediate |
| Smart Mental Health: Goal Setting and Visualization Techniques | Goal setting is the foundation of all successful endeavours. When we set a goal, what we are really doing is defining the roadmap of our life. With each goal we set, we establish the path we wish to take towards our objectives. | 1 | Intermediate |
| Smart Mental Health: Happiness is a Choice - Keys to Living a Joyful Life | This course will take us on a journey through five core areas of our human experience: the physical, the psychological, the spiritual, the social, and the occupational elements of being human that make up our lives. In each area we will learn about a tried and true pathway leading to greater happiness. For each of these pathways, we will offer tips and tools to help implement strategies to build happy and contented lives. | 1 | Intermediate |
| Smart Mental Health: Keys to Successful Parenting | "Understanding the common pitfalls of parenting, how to provide constructive discipline, and how to develop a healthy relationship with your child are just a few ways to identify areas for connection and improvement. This course is intended to help you as parents not only define your role and style, but to improve upon problem areas. You will be able to identify with the content and then think about how you can apply it to your own experience. Most parents recognize that this role can be a challenging one and that those who serve in it are often a work in progress. Identifying areas for improvement and understanding what it takes to raise successful children is pivotal. You will get examples to consider what you can do to be more helpful to your children, create a loving and nurturing environment, and help their development in the most effective way possible." | 1 | Intermediate |
| Smart Mental Health: Managing Anger and Emotions | "The modern workplace is often thought of as a strictly professional, rational, logical environment. Cooperation is key—personal opinions and emotions must be put aside in the name of teamwork, which may be easier said than done! No one can expect to connect with fellow colleagues the way they do their own friends or family members. One crossed word or bad mood can damage corporate relations, sometimes irreparably. The uncertainty of the business environment of today, and resulting stress that follows only adds to the pressure workers feel in performing their level best. Feeling overworked and overwhelmed is natural in the workplace, especially when it comes to dealing with change. The purpose of this course is to illustrate ways you can overcome the emotional barriers you may face in the workplace. This course will guide you through various exercises and give you tips to help you manage your emotions at work so you can perform to the best of your abilities." | 1 | Intermediate |
| Smart Mental Health: Reducing Stress and Anxiety | "Stress is our body's way of responding to physical, emotional, or mental demands. Although typically associated with negative circumstances, stress can be caused by both good and bad experiences. Our bodies react to stress by releasing chemicals into the blood to give us energy and strength to handle the situation. This evolutionary reaction can be a good thing when stress is caused by real physical danger; however, this survival response can wreak havoc if it builds up without a proper outlet. This interactive online course discusses signs and symptoms of stress, and explains the physical and emotional effects of built up stress, such as pain and anxiety. The course also describes stress management techniques, treatment options, and lifestyle changes to help alleviate stress. " | 1 | Intermediate |
| Smart Quality: Building Quality Awareness | "You expect quality from your vendors and your customers expect quality from you and your organization. In this SmartTeam course we will familiarize you, regardless of your level in your organization, with the meaning of quality, how it is critical, and how to begin to put it into motion in all of your work." | 1 | Fundamental |

VectorSolutions™

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Quality: Process Improvement | All work is a process—plain and simple. A process is a series of events, activities, decisions, or tasks that transform inputs into outputs. Processes can be very large, crossing many functions within your institution or organization; or small, existing within a department or unit. Smaller processes exist within the context of larger processes. It is imperative as you start that you are careful in what processes you select for improvement. This interactive online course discusses selecting, monitoring, and improving processes so you will be able to provide your products or services accurately and on time. | 0.5 | Fundamental |
| Smart Quality: Systematic Problem Solving | All organizations are challenged by problems that need to be fixed. You can become a master troubleshooter and problem solver. In this interactive online course we will instruct you in successful systematic problem solving, giving you methods and tools that you can use regardless of your position or organization. | 0.5 | Intermediate |
| Smart Sales 1: Understanding the Psychology of Sales | "Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person." | 0.5 | Fundamental |
| Smart Sales 2: Identifying the Decision Maker & Setting Appointments | Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 3: Securing Appointments & Advancing the Sale | Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 4: Overcoming Objections & Closing the Sale | Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 5: Business-to-Business Sales | Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 6: The Sales Cycle | Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Closing the Call | "Never has so much been written or talked about in prospecting and selling as closing or asking for the sale. Quite frankly, closing is easy and simple. In this eighth course in a 10-part series, you will learn how to implement an effective consultative process that will help you successfully close the call. The purpose of this course is to provide you with simple and effective techniques to move the sale forward and achieve your sales objective. " | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Creating Opening Statements | "Without a doubt, the opening statement is the most important part of your tele-prospecting call. This third course in a 10-part series helps you develop an effective opening statement that will get more prospects to stop and listen. This course provides you with a process by which to develop an effective opening statement, including templates that you can use as models for those opening statements. By immediately gaining the attention and interest of the decision maker, you will quickly get your foot in the door so you can meet and exceed your sales objectives." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Dealing With Dismissive Objections | "One of the most significant components of tele-prospecting is handling knee jerk objections. Decision makers may not want to be bothered, so objections may be tossed out at the beginning of the call to get you off the phone. If you aren't prepared to field these questions effectively, your opportunities to set appointments and sell will be greatly diminished. The purpose of this fifth course in a 10-part series is to help you overcome objections and continue the sales dialogue so that you can achieve your sales objective." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Follow-up Strategies and Tactics | "In many ways, the follow-up call is far more significant than the cold call. This is where value is created, where trust is further established with your prospect, and ultimately, where the rationale for buying is formed. Despite the importance of the follow-up, many tele-prospectors lack skill in this arena. In this ninth course in a 10-part series, we will discuss follow-up strategies and tactics to master the art of follow-up and close more sales. The goal of this course is to provide you with a follow-up strategy to help continue the sales cycle and ultimately close the sale." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Getting Past Gatekeepers | "The key to successful tele-prospecting is getting through to as many decision makers as possible. Unfortunately, human and electronic gatekeepers are often used by the decision maker to screen your calls. The purpose of this course is to provide you with strategies and tactics to get past these gatekeepers so you can reach your target and achieve your goals. This second course in the 10-part series covers a variety of methods and techniques that you can test, employ and master to improve your efficiency and effectiveness." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Handling Smokescreen and Authentic Objections | "Objections come in all shapes and sizes and some are easier to distinguish than others. While many objections are clear cut indicators of disinterest, others may be more vague and harder to discern. In this seventh course in a 10-part series, we will look at how to recognize and handle ambiguous objections effectively. The purpose of this course is to provide you with various tactics to help understand and manage both smokescreen and authentic objections, ultimately giving you greater confidence in dealing with your prospects and moving the sales cycle forward." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Overview and Pre-Call Planning | "This first course in a 10-part series introduces you to the process of tele-prospecting and shows you how to begin using this method to effectively and efficiently mine for prospective clients.<br>This questions-based, consultative approach to tele-prospecting is designed to get the client involved to determine needs, or potential needs. This course is for anyone who uses the telephone to qualify prospects, generate leads, set up appointments, or sell direct. The overall goal of this training series is to provide you with tips, tactics, and processes to maximize your tele-prospecting potential, and increase your success at prospecting by making you more effective on the phone. In short, it is to make you a better prospector and salesperson." | 0.5 | Fundamental |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Sales: Advanced Tele-Prospecting - Presenting an Offer | "Your offer, or sales message, is your opportunity to present your solution to the prospect and ultimately close the deal. To be effective, your message must be compelling and intriguing, and it must provide a reason for the prospect to take the next step. This sixth course in a 10-part series discusses how to present an effective offer or sales message. The purpose of this course is to provide you with the skills and techniques to craft and deliver a persuasive sales message that motivates prospects to take action. " | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Qualification and Questioning | "Effective questioning is at the very heart of the advanced tele-prospecting process — it is what separates tele-selling from tele-marketing. Effective questioning is what creates a quality lead, a good appointment, or a very good sale. This fourth course in a 10-part series discusses how to use questioning to identify needs, build rapport, and advance the selling process. The purpose of this course is to provide you with specific skills and techniques so you will question more effectively over the phone." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Using Email in the Tele-Prospecting Process | "There is little doubt that email is one of the primary methods of communicating with a decision maker, so it makes sense to have an email component in your tele-prospecting approach to the marketplace. The trick is to develop a good email that cuts through the clutter so it will be read and remembered by your prospect. This final course in a 10-part series discusses how to sell more by integrating email into your tele-prospecting process. The purpose of this course is to provide you with specific strategies and tactics on how to use email and voice follow-up effectively, while also providing you with email templates you can use to craft your own personal email message." | 0.5 | Fundamental |
| Smart Time Management: 7 Steps to Regaining Control of Your Day | Feeling out of control and overwhelmed by everything you need to accomplish each day? No matter how hectic your schedule appears, you can regain control of your day and increase your daily productive time. How? Effective time management is your tool to design success at work and at home. This interactive online course details a complete, integrated time management system. This system contains just seven steps, which will assist you in developing an effective and efficient method for allocating time and regaining control of your life. In addition to honing your prioritization skills, you will also learn how best to use your reclaimed time and how to periodically reassess your time management process so you can maintain control of your day. | 1 | Fundamental |
| Smart Time Management: The 80/20 Rule for Making Every Minute Count | "In 1897, Italian Economist Vilfredo Pareto found that 20 percent of any given population, of any country during any time period, accounted for 80 percent of the wealth. This pattern is repeated in many aspects of life, not just wealth. The 80/20 Rule as applied to time management reveals that there is generally a significant imbalance between our efforts and our results. Instead of there being a one-to-one relationship between effort and result, it turns out that 20 percent of our efforts produce 80 percent of the results. Conversely, the other 80 percent of our efforts produce only 20 percent of the results. This 1-hour interactive online course from SmartTeam explores how we can channel our time and effort to get the greatest results with the least amount of effort and stress. It focuses on your individual abilities, and teaches an entrepreneurial time management approach together with creative use of the 80/20 Rule. In other words, it will help you prioritize so that you do most often the things you are best at and enjoy the most. You will learn to strive for excellence in a few things, rather than achieving mediocre performance in many." | 1 | Fundamental |
| Smart Workplaces: Code of Conduct - Ethics Education & Social Media Guidelines | "At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination." | 2 | Intermediate |
| Smart Workplaces: Designing Safe Workspaces & Preventing Injury | Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more. | 1 | Fundamental |
| Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146) | "Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals:<br>Build and maintain a broader network of trusted professionalsGenerate leadsLearn about other companies and their hierarchiesLeverage powerful tools to find and reach the right peopleTap into the knowledge of their network, andDiscover new opportunities This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn." | 0.25 | Fundamental |
| Smart Workplaces: Preparing for a Pandemic Flu Outbreak | What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies?An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff. | 1 | Intermediate |
| Smart Workplaces: Putting Your People First - Personnel Administration | "The most important resource available to any organization is people. Organizations are made of people, and an organization cannot fulfill its intended mission without good employees. These employees need effective leadership to accomplish organizational goals and objectives. A good leader knows how to hire and keep good employees by following the rules and regulations that govern employment. This interactive online course will discuss several personnel issues of interest to all organizations. Whether you have 10 employees or 200 employees, just about every issue discussed in this SmartTeam course will, in some way, apply to your business. Issues discussed in this course include: Personnel Administration (Management and Leadership, Hiring and Firing Practices, and Employee Manual/Handbook)Sexual Harassment, Equal Employment Opportunity (EEO)Drug Free Workplace, The Americans with Disabilities Act of 1990 (Including 2008 amendments) " | 2 | Fundamental |

VectorSolutions™

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Workplaces: Responsible Social Media for Team Members | "It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies." | 0.5 | Fundamental |
| Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158) | "There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women." | 0.5 | Fundamental |
| Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145) | "Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls. Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected." | 0.5 | Fundamental |
| Stop When Unsure | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Stop When Unsure human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Storytelling for Business | Use the power of stories to connect with your team and your customers. Storytelling is a powerful tool you can use to improve presentations, share a vision, sell products, and connect with customers and colleagues Join national award-winning storyteller Andy Offutt Irwin and leadership guru Kelly Vandever as they show you how to create, organize, and use your own personal and business stories. | 1.25 | Fundamental |
| Strategic Brand Management | Effective brand strategy necessitates taking a pan-company perspective to understand the organisation's competencies, identify new opportunities and leverage the advantage of corporate culture to deliver the brand promise. Brand success does not result just from focusing on customers, but rather from adopting a more balanced perspective by addressing stakeholders. In an era when it is easy to copy what a brand can deliver (functional values) it is more difficult to copy how the brand is delivered (emotional values). This session will address how by looking inside and outside an organisation brands can grow and be sustained. It will open by presenting a model to strategically grow and sustain brands, 'From brand vision to brand evaluation'. After explaining the model, the different elements of the model will be explored to show how the model can be used to develop valuable brands. | 2.92 | Intermediate |
| Stress & Change Management for Design and Construction Professionals | "Stress can be defined as a chronic imbalance of the autonomic nervous system (ANS). This 4-hour interactive online course discusses the dangerous effects of stress and how to control stress through a Stress Management and Relaxation Training Program (SMART). This course is divided into three parts, providing the student with a background study of stress, reasons why it is a problem and practical tested information and techniques concerning stress. These techniques can improve the quality and, very likely, the length of your life. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 4 | Fundamental |
| Stress Management and Prevention | Employees constantly encounter conflicts with bosses, changing responsibilities, financial pressures and many other situations that can lead to stress. Workplace stress can negatively affect a company due to decreased attendance, proficiency, and productivity. This course will help workers identify potential stressful situations, become aware of the effects stress can have on their health, relationships, and careers, as well as list ways to manage stress. | 0.25 | Intermediate |
| Stronger Together: Delegation and Task Management | "YOU CAN'T DO IT ALL! It's time to delegate. Delegation is perhaps the most important skill for a manager of people to learn and master. You can't do everything yourself, and you'll go crazy if you try! At the same time, delegation is challenging and it takes both commitment and an investment of time to get it right. The good news is, once you start delegating well, you'll be surrounding yourself with capable and empowered team members. This course follows the story of child prodigy, Brianca, and "Play All Day", the toy company she started with children like herself. Brianca learns quickly that the only way to accomplish her goals is to delegate well to those around her. Watch and learn as the "Play All Day" team grows together into a high-functioning team where each member feels valued and important. The course finishes with a bonus module on task management tools to help you keep track of your team's work. By the end of this course, you'll be inspired to go forth and delegate!" | 0.5 | Fundamental |
| Substance Abuse Awareness | Drug addiction is when an individual is involved in compulsive drug seeking and use, regardless of any negative health or social consequences. This compulsive drug use can cause employees to be more likely to miss work, be less productive, or even be involved in on-the-job accidents. This course raises awareness by discussing the effects of different types of drugs and alcohol as well as how to recognize and deal with symptoms of abuse. | 0.5 | Intermediate |
| Successful Hiring | Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview. | 1.25 | Intermediate |
| Successful Negotiation | One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, you'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life. | 1 | Intermediate |
| Successful Termination | Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee. | 1.25 | Intermediate |

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Supporting Change: 01-The 3 Phases of Change | Understand the three phases of change and what to expect in each phase. | 0.08 | Intermediate |
| Supporting Change: 02-Reactions to Change | Identify the common reactions to change and strategies to best handle each type of reaction. | 1 | Intermediate |
| Supporting Change: 03-Your Path to Supporting Change | Learn and apply the five-step process for helping your team through changes in the workplace. | 1 | Intermediate |
| Supporting Change: 04-Mastering Supporting Change | Practice Supporting Change in a full scenario situation. | 1 | Intermediate |
| Supporting Change: 05-Supporting Change Health Check | Test your ability to apply Supporting Change concepts in this skills-based scenario assessment. | 1 | Intermediate |
| The Art of Negotiation | From childhood we practice the art of negotiation. Bed time, a treat, a promotion, a raise, an extended deadline. Regardless of the type of work we do, knowing how to negotiate effectively can greatly impact our success and our satisfaction. Strategic application exercises and a rich multimedia process, will teach you basic skills to negotiate effectively to get the results you want. | 0.6 | Intermediate |
| The Change Process | In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes.This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours. | 2.5 | Intermediate |
| The Power of One-Taking Accountability to Get Results | Have you ever said that something is not your responsibility? Maybe it is! Learn how taking accountability can change the results you are getting at work and in your life. This course uses application exercises and a rich multimedia process to give you the insight and skills to change your results through taking accountability. | 0.5 | Intermediate |
| The Power of Vision | Do you know where you're going professionally? Do you know what you want out of the next 3 weeks? How about the next 3 years? This course will help you create a powerful vision of where you want to go and what you want to achieve. You'll also learn how to get others on board with your vision. You will learn from real-world examples of different individuals and how they took their vision of what they wanted and made it a reality. Whether you are trying to get somewhere personally, or you want to create a clear and compelling vision of where you want your team to be, this course can give you the foundation you need to get pointed down the right path. | 0.5 | Intermediate |
| The Risk of Misclassification of Employees & Essentials of I-9 Compliance (RV-PGM144) | In the first module of this interactive, online program, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors. The second module of this program will discuss valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce. | 1 | Fundamental |
| The Science of Personal Productivity | "Exploring the power of the mind to get more done.<br>Do you start your day by checking your email and then get stuck? Do you let one big task loom over your head and get in the way of your productivity? Do you find yourself saying "Yes" to too many tasks and then not having enough time to do anything well? If any of these sound like you, this course from Dr. Rebecca Heiss will help you understand more about why we find ourselves in these situations, and teach you practical, science-based ways to be more productive at work or home." | 0.75 | Fundamental |
| The Top 5 Marketing Mistakes | "What Is The Difference Between A Marketing Campaign That Delivers Average Results, And One That Boosts Profits And Changes Your Bottom Line? (Hint: The keys to effective marketing are in this course).<br>In this course, Rich Harshaw explains why his famous statement, ""Everything You Know About Marketing Is Wrong"" is so universally true, and what businesses can do to revamp their marketing strategies to achieve superior results." | 3 | Fundamental |
| Time Management Basics | You can improve the way you use time. You can avoid patterns and habits that make it difficult for you to get things done. Benjamin Franklin said, Dost thou love life? Then do not squander time, for that's the stuff life is made of. | 1.5 | Fundamental |
| Tips for Managing Older Team Members | Being in a leadership position early on in your career is exciting. But on the flip side, you can face hurdles, including learning how to manage employees who may be years older than you. Older employees are a talent pool that shouldn't be underutilized despite the age gap. This video will provide some tips of what to do, and what not do to, when managing older team members. | 0.2 | Intermediate |
| Transition to Leadership | New to a leadership role? You're in the right place! As leadership, you have a different focus, new responsibilities, and different challenges than you did as an individual contributor. This course covers the ins and outs of the sometimes difficult transition experience from an individual contributor into leadership. Regardless of your title or the type of leadership role you now fill, through interactive assignments and a rich multimedia process, this course will smooth your transition and put you in position to excel in your new role. | 0.6 | Intermediate |
| Turnover | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional Turnover human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

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# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Understanding Business Ethics | In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company. | 2 | Intermediate |
| Understanding Gender and Gender Identity | Having an understanding of gender and gender identity is important in today's society. While it feels natural to describe people using the terms we were taught since early childhood, the female-male binary no longer applies to everyone. In this video we'll discuss what gender identity is and provide some tips for respecting everyone's deeply held sense of self. | 0.2 | Intermediate |
| Understanding HIPAA | In LearnSmart's Understanding HIPAA Video Training, individuals associated with the health care industry will learn the rights and responsibilities of both patients and employees with regard to medical information -- and how it must be gathered, stored, and managed. In addition, this training details the regulations surrounding how covered entities store, process, and transfer information. | 4 | Intermediate |
| Understanding Workers' Compensation for Employees (V15) | What would happen if you were injured in an accident on the job? Who would pay your medical bills and compensate you for time lost from work? In the state of Florida, not all employers are required to provide workers' compensation insurance. Workers need to understand their rights and know if they are covered in the event of a work-related accident. The purpose of this 1-hour interactive online course is to educate employees about their legal rights under workers' compensation. The class explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventative measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and maintain a healthy workforce. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Understanding Workers' Compensation for Employers V14 | Under federal and Florida State Law, employers have a legal obligation to provide workers' compensation benefits for workers injured on the job. Failure of eligible employers to provide compensation for injured workers may result in lawsuits and heavy fines, so employers need to know their rights and responsibilities. This 1-hour online course explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventive measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and control insurance costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Violence in the Workplace | Every year in the U.S., there are an estimated 2 million reported cases of workplace violence. NIOSH defines workplace violence as any act or threat of physical violence, harassment, or intimidation that occurs in the workplace. It can be instigated by criminals, customers, co-workers, or someone you have a personal relationship with. This course will raise awareness of the consequences of workplace violence and describe how to recognize warning signs so you and your coworkers can avoid these dangerous situations. | 0.25 | Intermediate |
| What's New in Excel 2019 | "Updates In Excel 2019 Optimize The Worlds Most Popular Spreadsheet For Modern Business  Making It Easier To Draw, Add Graphics, Manipulate Text, and More!<br>The updated Microsoft Excel 2019 includes new tools and capabilities that can help regular users and new users alike." | 0.75 | Intermediate |
| What's New in PowerPoint 2019 | "Impress Your Peers with the Latest and Greatest Features of PowerPoint 2019!<br>Microsofts latest release of PowerPoint 2019 packs quite a punch. With 3D models and vector graphics, your presentations can be more professional and visually pleasing than ever before. The new Morph transition and Zoom features can turn a boring slideshow into a guided tour. Updates to the Recording features make it easier than ever to create and share recorded presentations. Last but not least, with added features for Translation, Dictation, and Accessibility, PowerPoint is now truly a tool for everyone." | 1.25 | Intermediate |
| What's New in Word 2019 | "New Editing and Image Features Improve The Worlds Most Popular Document App<br>The new Microsoft Word 2019 includes a slew of new tools and capabilities that can help regular users and new users alike." | 1.25 | Intermediate |
| What's New in Adobe CC 2015? | Adobe Certified Expert Amy Roberts takes us through all the new features and updates in Adobe Creative Cloud 2015s Premiere Pro, After Effects, Adobe Stock, and Audition, with quick looks at new mobile collaboration tools Adobe Hue, Premiere Clip, and Adobe Color. | 1.5 | Intermediate |
| What's New in Office 2016? | "Learn how Office 2016 makes it easier than ever to save your work to the cloud, share and collaborate with others, and produce professional documents.  Microsoft Office 2016 is an evolutionary improvement that refines dozens of features and adds a few new tricks too. In this course Kelly Vandever and Jason Farr explore the improvements to Microsoft Office in 2016." | 1 | Intermediate |
| Windows 10 Essentials | This Course Is For People New To Windows 10 - Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. Windows 10 combines the best features of Windows 8 with a more traditional navigation structure and layout, plus some new modern benefits. | 1 | Fundamental |
| Windows 8.1 Essentials | "This Course Is For People New To Windows 8  Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. In fact, Windows 8 represents the biggest change in the Windows operating system since Windows 95." | 0.5 | Fundamental |
| Winning Proposals 1: Preliminary Steps & Planning Strategies | "Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review,  how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |

# Professional Development (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Winning Proposals 2: Effective Design & Development | "Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Winning Proposals 3: Components of a Successful Proposal | "Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You"ll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Winning Proposals 4 & 5: Final Considerations & Evaluations | "Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You"ll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Work Life Balance | Do you live to work or work to live? In this course you will explore your motivation and priorities, and discover how the answers to strategic questions can help you create a healthy rewarding balance between the activities in your life. Through interactive assignments and a rich multimedia process, this course will help you realign with your priorities and experience the life you desire. | 0.5 | Intermediate |
| Working Effectively with Building Officials and Inspectors | Who is an Authority Having Jurisdiction? How should you communicate with them? Anyone associated with building design and construction will eventually interact with a building official or inspector. This includes Fire Marshals, Health Departments, Planning Departments, local gas and electric companies and water and sewer departments. Having a positive and professional relationship will go a long way in creating a cost effective, timely and safe project. This interactive online course will present a number of techniques to use to ensure a productive outcome including: knowing the applicable codes, being professional, first impressions, understanding the role of the local AHJ, knowing when to appeal an unfavorable ruling, knowing when to accept an unfavorable ruling, and establishing your credentials. | 1 | Fundamental |

# Facilities Management & Maintenance

| Title | Description | Hours | Level |
|---|---|---|---|
| 2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning | "Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Building Code Essentials – Fire Safety | "Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council." | 1 | Fundamental |
| 2015 International Building Code Essentials – Health Safety | "For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council." | 1 | Fundamental |
| 2015 International Building Code Essentials – Life Safety | "Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Building Code Essentials – Structural Safety | "Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council." | 1 | Fundamental |
| 2015 International Fire Code Essentials – General Safety Precautions | "How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Fire Code Essentials – Hazardous Materials | "Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function.<br>In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Fire Code Essentials – Site and Building Services | "Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teachers you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Fire Code Essentials – Special Processes and Building Uses | "Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teachers you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Fire Code® Essentials – Fire/ Life Safety Systems and Features | "Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®." | 2 | Fundamental |
| 2015 International Fire Code®: Significant Changes | "Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®." | 2 | Fundamental |
| 2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes | "Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes.<br>Developed in partnership with the International Code Council. " | 1 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| 2017 NEC Changes: Communications Systems | "Proper wiring of electrical systems is essential to protecting life and property. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables." | 1 | Intermediate |
| 2017 NEC Changes: Special Equipment | Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. | 1 | Intermediate |
| 2017 NEC Changes: A New Process and Five New Articles | The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. | 1 | Intermediate |
| 2017 NEC Changes: Appliances and Equipment | Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. | 1 | Intermediate |
| 2017 NEC Changes: Branch Circuit, Feeder and Services | Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well. | 2 | Intermediate |
| 2017 NEC Changes: Conductors and Wiring Methods | Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. We will discuss the listing requirements in the Chapter 3.6 section and the .30 sections for securing and supporting throughout chapter 3. We will also examine 336.10 Uses Permitted for (TC cable) or tray cable and 338.10(B)(4)(a) Uses Permitted for service entrance cable or (SE cable), and review 344.14 Dissimilar Metals in Rigid Metal Conduit Systems (RMC). Other topics covered in the course include 350.28 Trimming of Liquidtight Flexible Metal Conduit (LFMC), 358.10 Uses Permitted for EMT. 376.20 Conductors in Parallel for Metal Wireways, and 392.22(A), which covers the number of conductors in (cable trays). | 1 | Intermediate |
| 2017 NEC Changes: Enclosures and Boxes | Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. | 1 | Intermediate |
| 2017 NEC Changes: General Requirements | Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 1 | Intermediate |
| 2017 NEC Changes: Hazardous Locations | Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements. | 1 | Intermediate |
| 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding | Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. In this interactive, online course, we will discuss notable changes to the 2017 NEC. Such changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. | 1 | Intermediate |
| 2017 NEC Changes: Receptacles and Switches | How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. | 1 | Intermediate |
| 2017 NEC Changes: Special Occupancies | "The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards." | 1 | Intermediate |
| 2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy | "This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8." | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| 2020 NEC® Changes: Branch Circuit GFCI Protection | Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210. | 1 | Intermediate |
| 2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures | "This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units." | 1 | Intermediate |
| 2020 NEC® Changes: Devices, Lighting, and Gear | "This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®.<br>Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting." | 1 | Intermediate |
| 2020 NEC® Changes: Equipment for General Use | "This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment.<br>Article 445 contains the requirements for generators.<br>Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries." | 1 | Intermediate |
| 2020 NEC® Changes: Focus on Wiring Methods | This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. | 1 | Intermediate |
| 2020 NEC® Changes: General Requirements | The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space. | 1 | Intermediate |
| 2020 NEC® Changes: Overvoltage and Grounding & Bonding | This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. | 1 | Intermediate |
| 2020 NEC® Changes: Process Review and Updated Articles | "This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems." | 1 | Intermediate |
| 2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems | Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources. | 2 | Intermediate |
| 2020 NEC® Changes: Special Equipment | Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on underfloor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring. | 1 | Intermediate |
| 2020 NEC® Changes: Special Occupancies | The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations. | 1 | Intermediate |
| 2020 NEC® Changes: Wiring and Protection | Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection. | 2 | Intermediate |
| 8-Hour HAZWOPER Refresher | This series of courses meets the 8-hour OSHA HAZWOPER annual refresher training requirement for workers at hazardous waste sites. While this set of courses is designed to meet OSHA's HAZWOPER annual refresher requirements, your employer must provide any other site-specific and job-specific training deemed necessary. This set of courses does NOT cover:Incident Review Requirements - To meet OSHA's HAZWOPER incident review requirement, your employer must provide incident review training and any other site-specific and job-specific training deemed necessary by your employer.Hands-On Training - Your employer is expected to provide hands-on training, have a qualified trainer available for questions, and determine what additional training is needed to satisfy your training program requirements. | 8 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| A Leaders Guide to Decision Making | Sometimes choices are tough. We second guess our decisions or stall making one to start with. In this Effective Leaders Guide for making decisions, learn the steps to make more strategic choices and to feel comfortable with the decisions you have made. Using application exercises and a rich multimedia process you will soon be more comfortable in your own skin and more effective with your choices by applying what you have learned in this foundational course. | 0.5 | Intermediate |
| Above ground Storage Tanks, Part 1 | This course provides information about several types of above ground storage tanks, associated auxiliary equipment, and general safety concerns related to these tanks and the materials they contain. | 1 | Intermediate |
| Above ground Storage Tanks, Part 2 | Process facilities use above ground storage tanks to meet a variety of operating needs. Operators who work with these tanks need to know what their responsibilities are and how to carry them out safely. This course covers operator responsibilities in areas such as routine inspections, sampling, gauging, and material transfers. | 1 | Intermediate |
| AC Fundamentals Review | This course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be "qualified." A person who does not meet this requirement should work under the direct supervision of a qualified person. | 1 | Intermediate |
| AC Generator Basics | "A generator is a device that converts mechanical energy into electrical energy. AC generators are commonly used to provide electrical energy for a wide range of commercial, domestic, and industrial applications. AC generators vary considerably in size, from small ones like automobile generators, to large generators that can supply power needs for a large city.<br>The purpose of this training course is to focus on AC generators that are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts)." | 1 | Intermediate |
| AC Generator Maintenance | The purpose of this course is to provide an overview of the operation and maintenance of large alternating current (AC) generators, which are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts). This course covers common AC generator maintenance tasks such as replacing brushes, performing overhauls, and conducting electrical tests. | 1 | Intermediate |
| AC Motor Basics | Electric motors provide the mechanical energy that is needed to operate a wide variety of equipment in an industrial facility. To make sure that the motors in their plant are operating properly, operators should be familiar with the fundamentals of motor operation and the basic operating characteristics of AC motors. In this course, the trainee will learn about the basic operation of an AC motor as well as its parts and functions. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 1 | This course introduces participants to AC motor controllers, which are devices, or groups of devices, that control the operation of alternating current (AC) motors. They can start, stop, or protect a motor; control its speed; and change its direction. By doing so, AC motor controllers make it possible to use motors more effectively in industrial operations. In most industrial facilities, electrical maintenance personnel are responsible for maintaining AC motor controllers and correcting any controller problems that arise. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 2 | Alternating current (AC) motor controllers serve a vital function in industrial facilities: They control the operation of AC motors. Therefore, when a controller breaks down, it is essential for electrical maintenance personnel to know how to locate the cause of the controller malfunction and be able to make the necessary corrections. It is also important for electrical maintenance personnel to be able to maintain the AC motor controllers in their facilities so that they operate with maximum efficiency and a minimum number of breakdowns. This course deals specifically with troubleshooting and maintenance procedures for AC motor controllers. | 1 | Intermediate |
| Access 2013: 01-Working with Databases in Access 2013 | Study the characteristics and components of a database, while learning the capabilities provided by Access 2013 to build and implement databases. You will also find discussions on the distinction between queries and forms, on how to update and delete records, on the process of adding records to labels, and on the different filtering options that can be used to view data. In the relational database section, you will focus on the difference between flat and relational databases, the rules that apply to building relational databases, how to identify entities and attributes as well as use database diagrams. Learn these foundational topics so that you can deepen your understanding of how to create and work with databases in Access 2013. This is the first course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 02-Creating, Modifying, and Managing Tables in Access 2013 | Databases can save you time and energy. They are also useful for managing large quantities of data. In this training, you will observe how to create them as you go through discussions on generating databases from a template, the Wizard, the old format, and manually. You will also spend time taking a closer look at database components, particularly tables, table relationships, and fields. In the field section, you will learn about what to do with unique values, testing a field, setting primary key fields, field sizes, field data types, setting default values, and changing data formats. Learn about how to work with each of these database elements in Access 2013. This is the second course in the Access 2013 (77-424) series. | 2.25 | Intermediate |
| Access 2013: 03-Working with Forms in Access 2013 | Take a closer look at forms as you focus on creating, enhancing, and formatting forms. In the form organization section, you will find presentations on tab modification, the way data sources are modified, and the steps to adding subforms. Some of the highlights from the formatting section include steps on applying themes and inserting images and backgrounds, how to sort records, and an overview of the printing layouts available. The navigation form section details the steps to creating navigation forms and how to format them. Overall, this course will introduce you to forms and teach you how to modify forms using Access 2013. This is the third course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 04-Working with Queries in Access 2013 | Learn the basics of queries as you look at the purpose of queries, how to add fields to queries, query modifications, working with multitable queries, and types of criteria in queries. There is also sections of this training dedicated to demonstrating how queries function. In the query calculation section, you will look at calculated fields, the Expression Builder, numeric and text calculation, and crosstab queries. The last section concentrates on action queries, which reviews how to use action queries, the steps to making table queries, how to update an action query, and append it. Take time to thoroughly explore queries so that you can use them to their fullest potential through Access 2013. This is the fourth course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 05-Sharing and Protecting Your Data in Access 2013 | Dive into making reports with Access 2013. They are the final piece to working with an Access database. There's also a section containing different tips for taking the Microsofts Access exam. The Protection section talks about protecting, splitting, merging, and encrypting a database. In the end, you will have a better understanding of how to use Access 2013 to create, modify, and print reports, as well as protect and maintain databases. With these skills, you will be equipped to work with reports and properly maintain databases. The final section of this course provides you with tips to help you successfully pass Microsofts 77-424 exam. This is the final course in the Access 2013 (77-424) series. | 2 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Accessibility by Building Type: Multi-Use Facilities | "This one-hour course will address the design and construction of multi-use facilities using the requirements of the 2010 Americans with Disabilities Act (ADA) Title III Regulations Accessibility Guidelines - ADAAG, effective and mandatory for all such buildings and sites in the United States on and after the 15th of March 2012. You will experience a ""virtual"" tour of the newly renovated Texas A&M University - Memorial Student Center (MSC) in College Station, Texas by the State of Texas Registered Accessibility Specialist (RAS) of record - both exterior site and interior portions of the additions and renovations project. This presentation will discuss the myriad accessibility issues that had to be met during design and construction and will address the "above and beyond" selection criteria used by the APA / TGCPD Accessibility Awards Program - a joint program between the Accessibility Professionals Association and the Texas Governor's Committee on People with Disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc" | 1 | Intermediate |
| Accessibility by Building Type: Universal Residential Design | "Universal Design is a term used to describe the idea of creating buildings, products, and spaces accessible to older adults, people with disabilities, and people without disabilities. The focus is on creating an all-inclusive environment usable by everyone, regardless of age or physical ability. Today's designers are challenged by the many rules and regulations in their commercial practice including the American's with Disabilities Act (ADA) and the Fair Housing Act (FHA). The application of Universal Design in architecture and construction allows homeowners to continue to live in homes that they love as their physical needs change. This interactive online course addresses why learning universal design considerations - from the initial design concepts through the life-cycle of the home - is necessary. This course will also assist designers and those in the construction industry in providing an educated and sensitive approach when creating design solutions to meet the everyday ""lifestyle"" challenges of the disabled. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education." | 1 | Fundamental |
| Accessible Routes: Getting In, Out, and Around | A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Fundamental |
| Active Shooter and Other Acts of Targeted Violence | "Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders." | 1 | Fundamental |
| ADA Guidelines 2010: Building Blocks | "The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the "Building Blocks" of accessibility as established by the guidelines, including: Ground and floor surfaces (302), Changes in level (303), Wheelchair turning space (304), Clear floor space (305), Knee and toe clearances (306), Protruding objects (307), Reach ranges (308). Operable parts (309)" | 1 | Intermediate |
| ADA Guidelines 2010: Communication Elements and Features | The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include:What is effective communication?What are auxiliary aids and services?When is a state or local government required to provide auxiliary aids and services?Who chooses the auxiliary aid or service that will be provided?This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: 701 General702 Fire Alarm Systems703 Signs704 Telephones705 Detectable Warnings706 Assistive Listening Systems707 Automatic Teller Machines and Fare Machines708 Two-Way Communication SystemsATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Fundamental |
| ADA Guidelines 2010: General Site and Building Elements | "The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the "General Site and Building Elements" of accessibility as established by the guidelines, including: General (501)Parking Spaces (502)Passenger Loading Zones (503)Stairways (504)Handrails (505)" | 1 | Intermediate |
| ADA Guidelines 2010: Plumbing Elements and Facilities | The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the "Plumbing Elements and Facilities" of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and ToiletCompartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and ClothesDryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Intermediate |
| Adobe Acrobat DC Essentials | Create, Manipulate, and Liberate your PDF Documents with Adobe Acrobat. In this "Uniquely Engaging"TM course from Bigger Brains you will learn to use Adobe Acrobat Pro DC to convert documents to PDF files, search within PDF documents, edit and markup PDF documents, and convert and optimize PDF files. Taught by 25-year IT veteran Chip Reaves, Adobe Acrobat DC Essentials will help beginners and experts get more from the latest version of the Adobe Acrobat solutions. | 3 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Advanced Project Management: Advanced Project Risk Management | Project risk is based on a simple equation: Event Risk equals the Probability of an Event times the Consequences of the Event. As project managers we know this, either implicitly because we've studied and read about risk in projects or we know it from first-hand experience. We've also learned along the way that we cannot fully eliminate risk, only mitigate the risk and that there is no such thing as a risk free project or action. During this interactive online course on project risk management we will go beyond the fundamental truths of project risk and cover how decisions are made, delving into decision theory and decision making in the face of uncertainty; as well as exploring risk management through the four phases of Risk Identification, Risk Analysis, Risk Response, and Risk Mitigation and Control. | 2 | Advanced |
| Advanced Project Management: Advanced Project Scheduling | "Without a full and complete schedule, the project manager will be unable to communicate the complete effort, in terms of cost and resources, necessary to deliver the project. Knowing scheduling techniques will better prepare you to make decisions about schedule development and give better direction to your project team about schedule performance. This interactive online course will teach you the importance of scheduling in contract fulfillment, as well as introductory concepts for scheduling contract provisions, the concepts of delays and claims, and methods for delay claim resolution. You will also learn about establishing a scheduling model, best practice principles, and the eight steps for developing a good schedule model." | 1 | Advanced |
| Advanced Project Management: Converting Strategy Into Action | "All strategic change in an organization, any organization, takes place through projects and programs. To ensure that the strategic change results in the desired outcomes, however, takes planning, thought, and focus. In short, to get effective strategic change you need to have an effective strategic plan. Through an effective strategic plan, you are better postured to ensure that the projects and programs that are implemented create the future envisioned for your organization, be it increased profit or manufacturing of a new product. This interactive, online course is intended to change that mindset by helping you understand that to generate the outcomes any organization intends, or desires, requires direction via an actionable strategic plan. The course is intended for any engineer, project or program manager, engineering manager or executive who wants to understand strategic planning via a simple process that will replace chance and luck with specific goals, objectives, and action initiatives." | 1 | Advanced |
| Advanced Project Management: Executing Complex Programs | In today's fast-paced, competitive, and dynamic environment, the ability for an organization or individual to successfully execute a program is severely challenged. This is because programs are complex, wrought with uncertainty, and ripe with ambiguity. Efforts to navigate the complexity of programs often result in the program manager simply expending more of their vital time to make sense of it all, but there are only so many hours in the week and regardless how many hours you invest, the program will still be complex. In this interactive online course, you're going to be introduced to the Program Management Competency Model, which was developed to assist organizations and individuals make sense of the complexity of programs by focusing energy on the development of specific skill sets that yield the biggest return on investment. The six performance and eight personal competencies highlight areas where the development of knowledge, skills, and experience will return the greatest rewards for both organizations and individuals. The biggest reward being the capability and capacity to better execute complex programs. | 1 | Advanced |
| Advanced Project Management: Integrated Project Delivery | "Integrated Project Delivery is a construction delivery method that leverages a number of current trends to increase productivity and the speed of project delivery. This interactive online course will teach you about the importance of IPD's foundation of relational contracts, as well as the main ingredients that include a high-level of communications and collaboration and a no-fault work environment, from project charette through building commissioning. You will also learn about the roles that lean construction processes and building information modeling play in performing, as well as recognize that IPD has many of the traits of construction delivery systems that are compatible with green building certification systems" | 2 | Advanced |
| Advanced Project Management: Managing Project Teams | Successful projects are not delivered through technical expertise alone. It takes the ability to manage and lead teams and people effectively. The most successful project managers know how to build and maintain an environment in which both teams and individuals are motivated to do their best work. Founded on a wide range of research and real-life experiences, this interactive online course will help you understand how to develop and sustain effective project teams. You will learn tools, techniques, and tips you can add to your toolbox of people-management skills, enabling you to improve performance for yourself, your team, and the individuals on your project team. | 1 | Advanced |
| Advanced Project Management: Project Management in a Dynamic Environment | This interactive, online course covers the nine principles that master project managers, and their teams, put into practice managing projects in a dynamic environment. This environment is one experienced by most, if not all, project managers. It's an environment that holds speed and uncertainty as two of its most relevant characteristics. Both of these characteristics can cause severe stress during project planning and execution, and can lead to project failure if the project manager doesn't develop the skills, knowledge, and leadership ability demanded in the dynamic environment of today's projects. Mastering these nine principles will help you develop the inward and outward orientation, the formal and informal procedures, and the high-touch and high-tech communications strategy that you will require to be an effective, master project manager on your dynamic projects. | 1 | Advanced |
| Advanced Project Management: Project Performance Management | To control a project and keep it on budget and schedule, you need to have a quantified sense of where the project is. How is it doing? Is it on time? Is it on budget? Are the deliverable's being delivered? Are the end users satisfied? To achieve this level of project performance assessment requires a deeper understanding of metrics and measures. During this interactive online course, you will go deeper than the Project Management Institute's Project Management Book of Knowledge® takes individuals in Earned Value Management. This course will also expand your understanding of metrics and Key Performance Indicators, which are essential tools and techniques project managers must develop to effectively conduct project performance measurement on today's complex projects. | 1 | Advanced |
| Advanced Project Management: Sustainability in Project Management | "Confirming that sustainability concepts are designed into a project from the beginning ensures that project sponsors and owners receive the maximum value, either through reduced project costs or through reduced life cycle costs. This interactive online course will teach you the principles of sustainability and how you can use this basic knowledge to increase the value in the projects you manage. You will also learn about the effects of climate change on projects and how to properly address the risks that arise from climate change. Additionally you will learn how sustainability can be integrated into traditional project management by addressing each of PMI's five project management process groups and eleven knowledge areas." | 2 | Advanced |
| Advanced Project Management: The Power of Project Leadership | This course should look at project management and leadership, then go into the fundamental leadership mistakes made by project managers and how to remedy them. Throughout, actionable tips and recommendations should be provided to enhance the user's skill set in project leadership. The course is geared for active project practitioners with experience in managing projects and mid- to senior-level managers. The course will provide information that can be applied to current projects, allowing for introspection. New project managers, or those aspiring to lead projects, however can benefit from the course by learning about the skill set required by effective project leaders. | 1 | Advanced |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Advanced Project Management: Understanding the Project, Program, and Portfolio Architecture | "Project and construction managers are at the leading edge of delivering benefits to an organization. But how does one's efforts fit in the bigger picture? And why do you even need to know the bigger picture? This interactive, online course will define project, program and portfolio management, as well as explore the key differences and interactions. This course will also introduce you to the concept of benefits realization management and how the project, program, and portfolio hierarchy can be used to bring strategy to life and ensure more successful projects. This course will help professionals both new to, and experienced in, project management. Whether you're new to project management, or have been practicing it for some time, understanding the hierarchy of project, program and portfolio management will help you take your skills to the next level." | 1 | Advanced |
| AEC Success: Business Development and Sales | "Everyone lives by selling something." Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action. | 1 | Fundamental |
| AEC Success: Effective Decision Making | Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home. | 1 | Fundamental |
| AEC Success: How to Become a Top-Notch Industry Leader | Are you a positive powerful leader? Most engineers and other technical professionals strive to become a "manager" and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift. | 1 | Fundamental |
| AEC Success: How to Communicate and Present Effectively | Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator. | 1 | Fundamental |
| AEC Success: Networking and Relationship Building | Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come. | 1 | Fundamental |
| AEC Success: Time Management and Billable Hours | Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you. | 1 | Fundamental |
| Agile Project Management: 01 - Agile Series Overview | What comes to your mind when you think Agile? You're probably thinking about the ability to move quickly and easily, and you would be right. Now apply that definition in the context of project management. An Agile project manager is someone who can move quickly, adapt to change, and make smart adjustments on the fly. This courses primary purpose is to increase your knowledge of the principles and processes involved in the Agile method of project management as organized and suggested by the Project Management Institute. We will spend a lot of time discussing what you need to know and the knowledge required or at least expected to be known by most agile practitioners. The courses in this series are loosely based on the domains of: Agile principles and mindset, Value driven delivery, Stakeholder engagement, Boosting team performance practices, Adaptive planning, Problem detection and resolution, Continuous improvement. Upon completion of this series you will be well versed in the methodologies and principles of Agile project management and effectively prepared to sit for the PMI-ACP exam from PMI. | 0.25 | Intermediate |
| Agile Project Management: 02 - Traditional vs. Agile Project Management | The idea of performing project management work in an agile way did not magically appear in the last couple of years. But, what is an agile project management? This course examines what it is and the difference between agile and traditional project management. | 0.75 | Intermediate |
| Agile Project Management: 03 - Agile Manifesto Principles 1 - 6 | Since the Agile Manifesto serves as the guiding principle of the entire agile project management collective, it also holds a prominent part in the Project Management Institute-Agile Certified Practitioner exam. In this course, we will explore the first six principles of the manifesto in depth. | 0.75 | Intermediate |
| Agile Project Management: 04 - Agile Manifesto Principles 7-12 | At the root of the modern structure of agile project management is the Agile Manifesto, and it should be used as a guide to the philosophy of the agile project management approach. This course focuses on the last six agile principles as well as the Declaration of Interdependence. | 0.5 | Intermediate |
| Agile Project Management: 05 - Value Driven Project Management | To select the best project to work on, you must assess what is to be gained from its efforts and at what costs. Benefits are best placed in the perspective of the customer or business value. This course covers value-driven development. In this, we discuss how to determine the amount of time and effort to spend on a project. It also discusses how to determine when to expend time and resources on any one or more features, functions, procedures, parts, and/or elements of that project over others. This course makes clear what the value is and how utilizing agile project management approaches can deliver to that value. | 1.25 | Intermediate |
| Agile Project Management: 06 - Setting Vision and Prioritization in Agile Projects | Agile projects are selected based on certain aspects and considerations. Prioritization and planning is where most of the effort and time is spent in agile project management. This course delves deeper into prioritization and risk management in agile project management. We expand on the prioritization of the features and functions of our selected projects, building out our products vision and business case for development, and laying the foundation for our products plan of fulfillment. Also, greater detail and care is spent on the tools, techniques, and other concepts surrounding the planning at all the various levels of an agile project. | 0.75 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Agile Project Management: 07 - Scrum and Extreme Programming (XP) Methodologies | This course is about the agile methods and frameworks of Scrum and Extreme Programming. These are, arguably, the two most well known of the agile project management methodologies. In this course, we cover the basics, principles, and practices of both methods. | 1.5 | Intermediate |
| Agile Project Management: 08 - Other Less-Common Agile Methodologies | In this course, we explore some of the lesser known agile project management approaches beyond the popular ones of scrum and extreme programming. Their lack in popularity right now does not mean they will always be lesser known. They may become the go to approach in the future if certain industries or subsets of the agile community adopt them more fully and evangelize their exalts. | 1 | Intermediate |
| Agile Project Management: 09 - Planning Agile Projects | Planning in agile projects differs from waterfall projects or other more traditional projects in the aspect of adapting to the needs and expectations of the stakeholders and the product development in a flexible manner. This encourages changes and course corrections as often as necessary, and makes planning essential to a projects success. This course examines how to best plan an agile project, the differences between the various levels of project planning, and useful tools to aid in the planning. | 1.25 | Intermediate |
| Agile Project Management: 10 - Estimating Agile Projects | Estimating the work, effort, and time activities will take during a project is a very challenging exercise. However, its also a very important and crucial piece to any project management. How estimation works in agile projects is slightly different than in traditional projects or daily operations. The circumstances and variables are more varied in agile projects than in traditional project needs. This course aims to explore those differences, the strategies at play in agile estimation, and the various tools and techniques any agile practitioner whether that be an agile project manager, agile coach, ScrumMaster, or agile development team member should be aware of. | 1.25 | Intermediate |
| Agile Project Management: 11 - Implementing Agile Projects | A good agile project manager should be knowledgeable about the various tools and techniques of the agile project management trade. They should also be versatile enough to know when to apply the documented tools and techniques in their literal or highly structured manners and when to bend or accommodate them to the requests of the agile team. This course is aimed for those who may be taking on the role of agile project manager, agile coach, agile practitioner, agile mentor, or ScrumMaster. We discuss the basics of each type of agile manager, their similarities and differences, how to use the tools and techniques available, and what role agile management has in an agile project. | 1 | Intermediate |
| Agile Project Management: 12 - Team Formation and Creating an Agile Environment | There is a lot to learn and be aware of when working with agile project teams. Agile project team formation and empowerment requires setting up self-organizing and self-empowered groups of skilled and supported individuals. This course focuses on how teams are most effectively formed, how they are supported, and how those teams can more effectively work together and be continuously successful. | 1.5 | Intermediate |
| Agile Project Management: 13 - Communication in Agile Projects | There are many challenges and potential pitfalls of communication throughout the duration of a project. Communication is absolutely critical to any team activity, and agile project management is a team activity. The success and failure of an agile project can certainly rest on the proper or improper use of communication. This course covers the many aspects of communication in an agile project. The general goals of this course are being aware of the various modes of communication, the importance of communication in an agile project, and how to best apply the appropriate tools and techniques surrounding communication to best support your project. | 1.5 | Intermediate |
| Agile Project Management: 14 - Increasing Agile Stakeholder Engagement | Project stakeholders are all those affected by the project, not just those who fund the project or those we are building the project for. The product owner is a stakeholder, but he or she is not the one using the product. A bigger set of stakeholders are the end users. Even beyond that, there are many other project stakeholders. This course covers who the stakeholders are, how to consider their needs as the project progresses, and several tools and techniques that help in incorporating the stakeholders needs and wants. | 1 | Intermediate |
| Agile Project Management: 15 - Soft Skills and Servant Leadership in Agile Projects | An agile project manager ensures the project and its components can run. He or she ensures that everything that is needed is taken care of and puts the agile project management framework and processes in place. In essence, a project manager leads by example. In this course, we explore how a good agile project manager utilizes soft skills and leadership in order to inspire team members, keep the lines of communication open, and deliver an excellent product. | 1 | Intermediate |
| Agile Project Management: 16 - Testing and Risk Management in Agile Projects | This course focuses on the process of managing potential threats and other forms of risks throughout the agile projects lifecycle. We cover how to test and validate in order to gather information to improve and adapt the processes of agile project management. We continue talking about the power of adaptive planning in agile projects and discuss how to optimize value delivery by selecting and tailoring the teams processes based on experiences and project feedback. | 1 | Intermediate |
| Agile Project Management: 17 - Problem Detection, Metrics, and Resolution in Agile Projects | There are always going to be problems in agile projects. Some will be major and some will be incredibly minor. Being able to detect, forecast, and address the problems especially any small problems before they become big is key to successful agile project management and practice. In this course, we concentrate on the needs and methods around the detection of problems, errors, issues, and other things deemed outside our acceptable realm of control. We also examine a few of the common tools, measurements, techniques, and other diagnostics that support the teams efforts to detect and resolve problems within the project. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Agile Project Management: 18 - Quality and Earned Value Management in Agile Projects | Agile project quality is a discipline that is built in and incorporated in all that is done from considering, to planning, to executing, to testing, to delivering, and every minute in between. Quality is a mindset and a practice throughout the agile project lifecycle. In this course, we concentrate on agile project quality and the role it plays in the gains or value. As we talk about the standards and the expected levels of quality of the products, we discuss the skills needed in order to measure quality. | 1.25 | Intermediate |
| Agile Project Management: 19 - Continuous Improvement for Management and Project Agility | No agile project is perfect. No person on an agile team is perfect. There is always room for improvement and growth. This course is about the constant striving for improvement. In this course, we explore the various methods and concepts surrounding the need and ability to continually improve an agile project, ourselves, our teams, our culture, our organization, our agile project management, and other areas, whether directly or indirectly. | 1 | Intermediate |
| Agile Project Management: 20 - PMI Code of Conduct in Agile Management | The discipline of agile project management does not have a particular governing body, standardization, or a certain entity that is the gold standard for certification in this field. The Project Management Institute has made tremendous inroads in adding some formality in this regard by collecting the best practices, concepts, approaches, and terms. This final course in the Agile series discusses the PMI Code of Conduct, which is essentially a list of values that should be found within any project. | 0.5 | Intermediate |
| Alternating Current | Alternating Current is a course designed to familiarize participants with how alternating current (AC) circuits work, and how voltage and current can change depending on the load, the source, and how the load and source are connected together. After completing this course, participants should be able to determine current and voltage values for an AC sine wave; explain how resistance, inductance, and capacitance affect AC circuits; explain how to calculate power in AC circuits and how to adjust power by correctly selecting and sizing circuit components; and describe the construction, operation, and use of various types of transformers. | 2 | Intermediate |
| An Effective Leader's Guide to Time Management | Ever wonder how some people get more done in the same 24 hours than you do? Gain the skills to up your productivity and own your time with this effective leaders guide to time management. This course uses application exercises and a rich multi-media process to integrate effective time management skills into your daily practices. This results in increased productivity, effectiveness, and overall desired outcomes. | 0.5 | Intermediate |
| An Entrepreneur's Guide to Networking | Facebook, LinkedIn, Twitter, professional associations, other departments, competitors the opportunities for networking, both social and in person, are endless. Thus it is vital to learn to be strategic about your networking efforts in order to build the best relationships and truly get the results you want. Through application exercises and a rich multimedia process, this course will teach you what you need to know and do to be a strategic and effective 'networker'. | 0.5 | Intermediate |
| An Introduction to Fitwel® | "What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL® ." | 2 | Fundamental |
| Anatomy of Construction Defects | Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that. | 2 | Intermediate |
| ASHRAE 100: Energy Efficiency in Existing Buildings | The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock. | 2 | Advanced |
| ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality | "ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE.<br>The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55)." | 1 | Fundamental |
| ASHRAE Essentials: 55-2017 – Thermal Environmental Conditions for Human Occupancy | This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners. | 1 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings | "This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners." | 1 | Fundamental |
| ASHRAE Guideline 13-2014, Building Automation Systems | Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems. | 2 | Fundamental |
| Asset Condition Management: Alignment and Balancing Training | "Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures." | 1 | Intermediate |
| Asset Condition Management: Motor Testing | "Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors." | 1 | Intermediate |
| Asset Condition Management: Setting Up an Oil Analysis Program | "Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel." | 0.5 | Intermediate |
| Asset Condition Management: Vibration Analysis Training | "Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring." | 1 | Intermediate |
| Backhoe & Front End Loader Safety | Backhoes are one of the most common types of construction equipment found on jobsites. Backhoe loaders can dig, scrape and load material. With special attachments they can perform virtually any required task. Backhoe loaders are complicated machines and it is important your employees know and understand the equipment capabilities. This program covers the maintenance and operation of a backhoe with emphasis on safety. This program contains both an English & Spanish version on the DVD and also comes with a Leaders Guide, PowerPoint presentation, end of course quiz, attendance log, and completion certificate. | 0.25 | Fundamental |
| Baler Safety | Cardboard balers are a common sight in many retail stores. There are many different types of balers that may operate in slightly different ways. However, what they all have in common are safety hazards and the need to follow safe operating procedures. This program is designed to train employees how to operate a baler safely. Topics covered also include: Basic safety rules for baler use, Pre-use inspection, Standard operating procedures, Safely removing the baled cardboard | 0.15 | Fundamental |
| Basic Business Finance | "Confused By Debits, Credits, Balance Sheets, And Other Business Accounting Terms? This Is The Course For You! Learn the basic accounting and finance concepts you need to be successful in modern business." | 1 | Fundamental |
| Basic Electricity Review | This course introduces the fundamental principles of electrical theory as applied to electrical circuits and devices such as transformers, inductors, and capacitors. The general topics covered in this course include the nature of electricity, basic electrical quantities and their units of measurement, electrical circuits, and electromagnetism. | 1 | Intermediate |
| Basic Rigging, Part 1 | The purpose of this course is to provide participants with an overview of basic rigging. Safely accomplishing any rigging operation involves selecting the proper equipment, determining if the equipment is in acceptable condition, and properly carrying out all applicable procedures. This course focuses on basic rigging components. | 1 | Intermediate |
| Basic Rigging, Part 2 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on basic rigging procedures. | 1 | Intermediate |
| Batteries | A battery is a primary component of a substation or switchyard direct current (DC) control system. The function of the control system is to supply control power to operate critical devices such as protective relays, alarms and status indicators, supervisory and communications equipment, and switchgear operating circuits. This course describes the role of the battery in the DC control system, the components of a lead-acid battery, how a battery works, battery ratings, and general battery inspection steps. | 1 | Intermediate |
| Battery Applications | "This 3-hour interactive online course is an overview of the most common chemical cell batteries in use today. It includes information about both primary and secondary battery types. Battery characteristics such as the chemical composition, electrical parameters, and physical construction are reviewed. Appropriate application issues are discussed for each battery type as well as the appropriate charging methods for rechargeable battery types. The course includes a test at the end of each scenario to measure your understanding of the material." | 3 | Intermediate |
| Be Proactive! Inclusion Starts With You | An inclusive work environment is created by individuals who value each other's differences - and, are proactive in stopping workplace discrimination or harassment. It's often difficult to know how to react when witnessing an individual or group of people experiencing any form of discrimination or harassment - but don't ignore it and walk away! This course will provide three ways you can be proactive about inclusion in your workplace. | 0.2 | Intermediate |
| Bearings Basics | Bearings are machine parts in which other parts turn or slide. Almost every piece of moving machinery in an industrial facility uses bearings. This course describes the different types of bearings, their functions, and corresponding maintenance procedures. | 1 | Intermediate |
| Bed Bugs: Facts And Prevention | Bed bugs have made a comeback in the US due to increased international travel. Bed bugs can crawl out of a travelers suitcases and establish themselves in hotel rooms. A Bed bug problem can be quite expensive. In fact, an outbreak could lead to serious litigation and large settlements and loss of business. Can your property afford it? This program trains your employees to spot bed bugs so they can be caught in the early stages and remediated before a major infestation occurs. This DVD contains both English and Spanish versions. | 0.15 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Blind Spots: Diversity and Inclusion | Is your biology working against you?This course will help you understand how our minds create blind spots and subconscious bias, and teach you how to evaluate the subconscious drivers that lead to ethical breakdowns. | 0.5 | Fundamental |
| Bloodborne Pathogens for Custodians | "Maintenance and custodial workers regularly encounter situations where they could be exposed to a bloodborne pathogen. This video, produced especially for custodian and maintenance staff, demonstrates how custodians and maintenance workers can safely clean up spills of blood or other potentially infectious materials without risking exposure. Topics covered also include: What bloodborne pathogens are, Diseases that could be transmitted, Potential exposure routes, How to protect yourself from exposure" | 0.25 | Fundamental |
| Bobtailing and Jackknifing | Bobtailing is sometimes necessary but a dangerous method of driving a big rig tractor without any trailing component. This program is designed to train your drivers on the challenges of bobtailing and the dangers of jackknifing. Drivers will learn how the profile, weight dynamics and engine power of the tractor can cause problems without a trailer attached. | 0.25 | Fundamental |
| Boiler Fundamentals | Boilers are commonly used to provide a source of steam for industrial plants. The plant personnel who operate and maintain boilers need to have a good working knowledge of the fundamental principles of boiler operation. They also have to know how to monitor and control the operation of boilers in their plant and the systems associated with the boilers.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boilers: Combustion, Water, and Steam | This course is designed to familiarize participants with some of the equipment and flow paths associated with combustion and steam production in a boiler. After completing this course, participants should be able to describe the parts and operation of typical gas burners, oil burners, and stokers. They should also be able to explain how air flow is produced in a boiler, why the proper fuel-to-air ratio must be maintained, and how air heaters improve the efficiency of boiler operation. Finally, participants should be able to explain how water circulation occurs in a boiler and describe the use of economizers and moisture separators. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions | Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than $150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs | 1 | Intermediate |
| Box Cutter Safety | Box cutters are used in every type of retail environment. Millions of cuts are made with box cutters each day and it only takes a moment of inattention to cause an injury. Regardless of the type of box cutters used, they all can cause serious injuries if not handled properly. This video program is designed to train your employees on the dangers of box cutters as well as demonstrate the steps they can take to remain safe.Topics covered also include:Safe body positioningProper storage of the box cutterBlade disposalSafe blade changing techniques | 0.1 | Fundamental |
| Brain Bites - Email Management | "From a Frustrating Chore to a Powerful Tool Learn How To Make Email Work For You<br>More than ever before people rely on email in the workplace but we dread the amount of time it takes to read through and respond to all our messages. This course will give you the skills you need to tame your email mountain and use it as the effective tool its meant to be.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce." | 0.5 | Fundamental |
| Brain Bites - Empathy: The Key to Active Listening | "Show that you are actively listening by using empathy.<br>You have probably heard empathy described as "feeling someone's pain", but what if that is not helpful or possible? Empathy is an important skill to improve your active listening and make those around you feel heard. By the end of this course, you will be able to explain and practice empathy by noticing body language, voice, and tone. You will learn to communicate an awareness of what someone else is feeling and be a better active listener using empathy. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Let Them Know You're Listening | "Send the message that you are listening to understand. The truth is, it's easy to not listen. We are surrounded by distractions and the list of reasons we don't listen well is long. So we have to work on listening to make others feel heard—especially at work. By the end of this course, you will be able to describe how to become a better, more active listener through focusing your attention on the speaker and clarifying their message. You will learn to build trust and become more approachable. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Organizing Your Files | "How To Stop Wasting Up To Two Hours Per Day Looking For Information<br>On average office workers spend one to two hours per day looking for information. Having an organized, searchable file and folder structure makes everyone more efficient and this course will show you how to do it.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce." | 0.5 | Fundamental |
| Brain Bites - Sharing a Workspace | "Learn to safely share a workspace to keep you and your coworkers healthy<br>The spread of COVID-19 led many offices to institute new rules and guidelines. This type of event underscores the importance of a clean environment in which employees are considerate about sharing space. By the end of this course, you will feel confident about sharing a workspace effectively to keep you and your coworkers healthy and safe. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Staying Safe Online | "Meet the hackers trying to break into your company, and learn how to recognize the ways they try to use you and your colleagues to steal money, data, and more. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Time Management | "Take back your day - learn how to reduce distractions and focus on priorities to get more done.<br>Everyone is given the same twenty-four hours every day. How you use them is up to you, and in this mini-course we'll look at tips from some of the world's top experts in time management, including Stephen Covey, Dave Crenshaw, Peter Drucker, and Tim Ferriss. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Brain Bites - Using Windows 10 | "Learn how to really use the tools in Windows 10 to be more productive. Windows 10 introduced many new tools, and updated others, including Cortana, Task View, Virtual Desktops, the Quick Access Screen, and more. In this mini-course we'll show you how to get around in Windows 10, and how to customize and take advantage of the major features and tools Windows 10 provides. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.75 | Fundamental |
| Brain Bites - Writing Effective Emails | "Send emails that are read, understood, and acted on. Let's face it, email is a fact of life. The average employee in the US receives 125 emails per day. The majority of professionals say email creates tension, confusion, and other negative consequences in their busy work days. This course will help you to be part of the solution by identifying ways to write better and fewer emails, that will also ensure your emails are read, understood, and acted on. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.5 | Fundamental |
| Brain Bites: Microsoft Teams Meetings | "Maximize your meetings with Microsoft Teams. If someone told you you'd be comfortable collaborating and meeting virtually in less than 30 minutes, would you believe them? Believe it! Bigger Brains has a way for you to learn Teams for virtual meetings that are just as easy and collaborative as your in-person gatherings. Thanks to its features and ease of use, Microsoft Teams is quickly becoming the dominant meeting platform for businesses of all sizes. Don't be left behind! We'll take a look at the major features of Teams meetings, including its deep integration with Microsoft Outlook and collaboration tools like Microsoft Whiteboard and PowerPoint. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.5 | Fundamental |
| Brayton Cycle Analysis | "The ideal cycle for the simple gas turbine is the ""Brayton Cycle"", also called the Joule Cycle. In this 1-hour interactive online course, the open, simple Brayton Cycle used for stationary power generation is considered. The Brayton Cycle thermal efficiency is also presented (but only for the air as the working fluid) and the thermal efficiency derivation is presented with a simple mathematical approach. The Brayton Cycle is presented in the ""T - s"" diagram and its major performance trends (specific power output and power output) are plotted in figures as a function of compressor pressure ratio, gas turbine inlet temperature and working fluid mass flow rate. In this course, the student becomes familiar with the Brayton Cycle, its components, T - s diagram, operation and major performance trends. This course provides the student with background material regarding basic thermodynamic concepts and a glossary for reference material. It should be noted that this online course does not deal with capital, operational or maintenance costs." | 1 | Intermediate |
| Browser Security Basics | A large number of cyber attacks target browser activity. This course provides all staff members with an overview of browser security and ways to browse the web safely. Topics include: the types of browser threats, the basics of browser security and safe browsing practices. | 0.25 | Fundamental |
| Building Design and Construction Features for Fire Protection | "Hostile fires are responsible for 3,000 deaths and 16,000 injuries each year. Approximately 100 firefighters die in the line of duty during that same period. In addition to human injury and death, is the property loss which is estimated to be almost $12 billion a year. This interactive online course will teach you the basic, but critical, aspects of how a building design influences the likelihood of a hostile fire and how that same design can mitigate the effects of an emergency fire incident. You will learn about basic building layout, construction components, building materials, fire ratings, occupancy considerations, emergency population management, and passive and active mitigating systems." | 1 | Fundamental |
| Building Information Modeling (BIM) for Contractors | "Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved." | 2 | Fundamental |
| Building Information Modeling (BIM) for Owners and Facility Managers | "Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved." | 2 | Fundamental |
| Building Leadership Capability | As a leader you will have opportunity to coach and mentor others in both official and unofficial capacities. Knowing how to effectively coach and mentor your people is key to both their success and to preparing new leadership to step up. Through application exercises and a rich multimedia process, you will learn the skills to be an effective coach or mentor, and thus be able to build additional leadership capability in your organization. | 0.5 | Intermediate |
| Building Performance: Design Through Operations | How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design. | 1 | Intermediate |
| Business Dining Etiquette | Proper etiquette makes a statement about your character and competence as a professional. In this course we'll focus on business dining etiquette and how to present your best self when meeting with clients, colleagues, partners, or even friends. Upon completing this course you will understand proper business dining etiquette for before, during, and after the meal. In addition you will understand common place settings and proper utensils. Finally, you'll learn about proper etiquette when you are hosting a meal. | 0.5 | Intermediate |
| Capacitors, Part 1 | Capacitors are used to control and increase the amount of capacitance in electrical circuits. In this course, participants will learn about the principles, function, and construction of capacitors as well as how to calculate capacitance and RC time constants of circuits. | 1 | Intermediate |
| Capacitors, Part 2 | Conditions exist in any transmission and distribution system that result in power losses in the systems and equipment that deliver power and in the systems and equipment that use power. In order to compensate for these power losses, utilities often use devices such as capacitor banks and shunt reactors. This course covers the functions of substation capacitors and reactors as well as how they can be safely cleared, maintained, and tested. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Carbon Tracking/ Reduction Strategies for Facility Design and Operations | "Carbon emissions are increasingly taking center stage at the forefront of sustainability. While concepts like ""net zero energy"" are gaining mainstream traction and help account for the design/reuse of facility's' energy utilization, they do not holistically account for their long-term operational carbon footprints. Often, these footprints represent the largest consequential greenhouse gas emissions associated with the building(s) over their useful life. This interactive online course will introduce the concept of designing for operational carbon tracking and reduction utilizing a case study project - a multi-building urban college campus in metro-Boston. This project was initiated by students and faculty of the school in 2013. This course will introduce team organization, methodology, an overview of the three ""Scopes"", and strategies for ongoing reductions towards the goal of carbon neutrality. This course will be useful for anyone interested in single or multi-building projects where carbon tracking, reduction, and off-setting are a priority." | 2 | Intermediate |
| Centrifugal Compressors | This course is designed as a reference tool that participants can use to refresh their understanding of centrifugal compressor components and operation. This course also covers the disassembly and reassembly of a vertically split compressor and the various checks and measurements that are made to compressor components. | 1 | Intermediate |
| Centrifugal Pump Components | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Centrifugal pumps convert external rotational mechanical energy into kinetic energy within a liquid. In a centrifugal pump, this is done by accelerating the liquid from the center to the outer rim of a spinning impeller within a pump casing. This course covers the terminology and function of the mechanical components that make up a typical centrifugal pump. | 0.5 | Intermediate |
| Centrifugal Pump Curves and Theory | A centrifugal pump is a dynamic machine that has performance characteristics which are partially determined by the environment in which it is operating. One of the best ways to display and study the capabilities of a given pump is with a graph called a pump performance curve. A pump performance curve is actually a set of curves showing a number of parameters versus flowrate. Pump curves can be combined with hydraulic requirements, or system curve, to determine the suitability of a pump for a given task. | 0.5 | Intermediate |
| Centrifugal Pump Fluid Mechanics | Pumps convert rotational kinetic energy, such as that supplied by an electric motor, into hydrodynamic energy, or an increased pressure in a fluid required to make it flow. In order to make a fluid flow, energy, or pressure must be supplied to overcome two fundamental obstacles to flow. One obstacle is created when the elevation of a fluid is increased. The second is presented by the need to overcome the internal resistance of a fluid to flow. This course focuses on how these basic hydraulic concepts apply to piping system evaluation and pumping requirements. | 0.5 | Intermediate |
| Centrifugal Pump Operations and Maintenance | Pump operations and pump maintenance are two closely interrelated topics. Poor mechanical pump maintenance will lead to a loss of hydraulic performance and what may appear to be operational problems. Operational decisions which cause the pump to operate outside of its preferred operation region can lead to physical pump damage which could be misinterpreted as a traditional maintenance issue. It is important to determine the root cause of a problem. This course will cover methods for monitoring pump hydraulic operation and methods for observing and maintaining the mechanical condition of a pump. | 0.5 | Intermediate |
| Centrifugal Pump Selection and Sizing | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Pumps have been developed to specifically address a wide range of applications. Selecting the correct pump for a given job can be a daunting proposition. Some pump classifications are based on their hydrodynamic characteristics, some are based on mechanical construction and some are based on compliance with industry standards. In this course, we will help you understand these different classifications and present some of the strengths and weaknesses of the different designs. | 0.5 | Intermediate |
| Centrifugal Pump System Components and Design | The purpose of a pump is to increase the pressure of a liquid and transfer it from one location to another. Although a pump is essential to this goal, it is only one element of a larger system that is required to accomplish liquid transfer. This course will cover some of the mechanical components such as drivers and couplings that support pump operation. It will also cover how the design of a piping system around a pump will affect pump selection and performance. | 0.5 | Intermediate |
| Chain saw Accidents - The Consequences | Chain saw accidents can be devastating and drastically affect your quality of life. In this program, we explain how chain saw accidents can occur, and what the consequences can be. Filmed with visual scenes of injuries to employees who were involved in chain saw accidents, this video hammers home the seriousness of what can happen when using a chain saw, and the importance of following proper safety procedures at all times during chain saw use. By demonstrating the many ways a chain saw accident can occur your employees will walk away trained in how to prevent them. | 0.15 | Fundamental |
| Chain saw Safety | Using a chain saw is something landscape personnel in public works and many other occupations must frequently do. Because of the dangers inherent in chain saw use, it is critical that you operators be properly trained on how to use them. This comprehensive video demonstrates chain saw use by skilled operators. In it, the most important techniques to prevent injuries when using a chain saw are covered. Every chain saw operator can learn something from this easy to understand program. | 0.25 | Fundamental |
| Clean And Safe: Restrooms | Clean restrooms are significant. But, this video isn't just about HOW to clean a restroom, its about how to do it SAFELY. What PPE is needed? How can slips and falls be prevented in damp environments? How can you work with chemicals safely? What should be done with broken glass and/or other pointed objects? All of these questions and more are answered in this video designed for both Housekeeping and Facilities personnel. | 0.1 | Fundamental |
| Coaching Job Skills: 01-Determining Training Or Coaching | Coaching Job Skills teaches managers, supervisors and team leaders how to successfully coach employees in their jobs. In addition, it will help widen the breadth of skill sets for all employees. | 1 | Intermediate |
| Coaching Job Skills: 02-Your Path to Training New Skills | Learn and apply the five-step process for training your team members on new skills. | 1 | Intermediate |
| Coaching Job Skills: 03-Your Path to Coaching Existing Skills | Learn and apply the five-step process for coaching your team members on existing skills. | 1 | Intermediate |
| Coaching Job Skills: 04-Mastering Training New Skills | Practice Training New Skills in a full scenario situation. | 1 | Intermediate |
| Coaching Job Skills: 05-Mastering Coaching Existing Skills | Practice Coaching Existing Skills in a full scenario situation. | 1 | Intermediate |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Coaching Job Skills: 06-Health Check | Test your ability to apply Coaching Job Skills concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Coastal Engineering: Tsunamis | What is a tsunami? Tsunamis are destructive natural events that create extremely high storm surge and large waves causing large amounts of erosion, and extensive inundation jeopardizing structures and people along the nation's coastlines where these events can occur. This interactive online course will provide information about the magnitude of tsunami loads, tsunami evacuation shelters, and important issues regarding the placement of structures on tsunami-prone coastlines. Case studies will be included to illustrate techniques that are known to improve building survival of tsunamis. | 2 | Intermediate |
| Cogeneration Systems Essentials | Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits. | 1 | Fundamental |
| Collaborative Communication: 01-Communicating to Your Manager | Learn the background key concepts to effective communication to your boss or supervisor. | 1 | Intermediate |
| Collaborative Communication: 02-Your Manager's Communication Style | Identify the medium, frequency, and amount of detail needed to successfully communicate with your manager. | 1 | Intermediate |
| Collaborative Communication: 03-Your Path to Communicating Up | Learn and apply the five-step process for communicating to your boss or supervisor. | 1 | Intermediate |
| Collaborative Communication: 04-Mastering Communicating Up | Practice Communicating Up in a full scenario situation. | 1 | Intermediate |
| Collaborative Communication: 05-Communicating Up Health Check | Test your ability to apply Communicating Up concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Combustion Analysis | "Today, global warming is becoming more evident and it is being said that it is primarily caused by CO2 emissions. A detailed combustion analysis can be very useful in determining different fuel and technology scenarios that would result in the reduction of current CO2 emissions. Combustion has a high degree of importance in engineering. This 1-hour interactive online course covers complete and adiabatic combustion of carbon, hydrogen, sulfur, coal, oil and gas, with no heat loss, with standard air as the oxidant at stoichoimetric conditions. Six separate combustion cases are covered and basic combustion performance trends are presented" | 1 | Intermediate |
| Commercial HVAC Systems Essentials | When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/maintenance, and management. | 1 | Fundamental |
| Commercial Kitchen Fire Prevention | "Fires are an ever-present danger in a commercial kitchen. But the danger can be controlled and contained by following sound fire prevention principles. This video outlines these principles and trains your employees that properly following them will help in preventing and containing fires in your establishment. This program covers the different types of fire suppression systems as well as how to operate and inspect them. Additionally, the importance of keeping flues and appliances grease-free is reviewed as well as other common sense tips that will help your employees remain safe. It comes with both English and Spanish on one DVD. Topics covered also include: Different types of fire suppression systems, How to operate and inspect these systems, The importance of keeping flues and appliances grease-free, Common sense tips to help employees remain safe" | 0.1 | Fundamental |
| Commercial Plumbing Systems Essentials | This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management. | 1 | Fundamental |
| Commercial Structural and Building Systems Essentials | "This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building Systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects." | 1 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Company Layoffs and Downsizing | Layoffs, reduction, downsizing, rightsizing, staff cuts, managing redundancy; any way you say it, the reality is a complex process that impacts a lot of individuals and organizations worldwide. Through application exercises and a rich multimedia process, this course will increase your understanding of how to make this potentially traumatic experience as successful and positive as possible for everyone involved. | 0.75 | Intermediate |
| Compressed Air Systems: Introduction to Performance Improvement | Compressed air is used widely throughout industry and is often considered the 'fourth utility' at many facilities. Almost every industrial plant, from a small machine shop to an immense pulp and paper mill, has some type of compressed air system. In many cases, the compressed air system is so vital that the facility cannot operate without it. This 3-hour online course discusses the basics of compressed air systems including compressor types, power sources used to drive the compressor, types of system controls, compressor system accessories, and uses of compressed air. This US Department of Energy sourcebook that this course is based on is designed to provide compressed air system users with a reference that outlines opportunities for system performance improvements. It is intended to make compressed air system users aware of the performance improvement potential, details some of the significant opportunities, and directs users to additional sources of assistance.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Compressible Flow Components Analysis | "The ideal subsonic nozzle, diffuser and thrust analysis is presented only for the air as the working fluid. The technical performance of mentioned compressible flow components is presented with a given relationship between temperature and pressure as a function of the Mach Number. This interactive online course provides the compressible flow components T - s diagrams and their major performance trends (stagnation over static temperature and pressure ratio values) are plotted in a few figures as a function of the Mach Number. In this course, you will become familiar with the compressible flow components (nozzle, diffuser and thrust), their T - s diagrams, operation and major performance trends." | 1 | Intermediate |
| Compressors: Centrifugal and Axial | This course is designed to familiarize participants with basic concepts associated with the parts and operation of centrifugal and axial compressors. After completing this course, participants should be able to describe the main parts and the general operation of single-stage centrifugal compressors, multistage centrifugal compressors, and axial compressors. They should be able to describe the functions of compressor lubrication systems, seals, bearings, and common auxiliary devices. | 2 | Intermediate |
| Compressors: Operation of Centrifugal and Axial Types | This course is designed to familiarize participants with basic concepts associated with the startup, operation, and shutdown of centrifugal and axial compressors. After completing this course, participants should be able to describe the general functions of instrumentation and control devices used with centrifugal and axial compressors. They should be able to describe operator responsibilities associated with starting up, operating, and shutting down centrifugal and axial compressors. | 2 | Intermediate |
| Compressors: Positive Displacement | This course is designed to familiarize participants with basic concepts associated with the operation of positive displacement compressors. After completing this course, participants should be able to identify the main parts and describe the general operation of various types of reciprocating compressors and rotary compressors. They should also be able to describe operator responsibilities associated with starting up, operating, and shutting down compressors. | 2 | Intermediate |
| Condensate Recovery and Steam Traps | Whenever steam condenses in a process, it creates hot liquid condensate. It is the role of steam traps to remove condensate from steam lines and process equipment with a minimum loss of live steam. The condensate has economic value, so it is typically collected and reused. This module discusses the collection and re-use of condensate in a steam generation system. Three major classifications of steam traps are discussed, including their principles of operation, and their strengths and weaknesses. | 0.5 | Intermediate |
| Conductors | Running cables and conductors is an integral part of electrical maintenance. The topics covered in this course include how cables and conductors are classified, the factors that must be considered in selecting a conductor or cable for a particular application, and procedures for installing, splicing and terminating cables and conductors used in low-voltage applications. | 1 | Intermediate |
| Confined Spaces in Construction | This course will define "confined spaces" and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces. | 1 | Fundamental |
| Conflict Resolution | Dealing with conflict in the workplace can be difficult. Seeing a person with whom you have issues every day can be challenging and distracting. Resolving conflicts has a major positive effect on the work environment, making it happier and more productive. Having employees with this conflict resolving quality is an important part of creating a productive workplace. This conflict resolution training course highlights the important aspects of resolving conflicts in the workplace. The course offers a myriad of conflict resolution skills and strategies that will help employees better deal with disputes in the workplace. | 0.7 | Intermediate |
| Conflicting and Non-Existent Accessibility Standards | What do you do when you have conflicting accessibility standards? What about when there are no standards? How do you make sure your building or facility is compliant? This interactive online course will cover these scenarios and help you make sure that you are designing and building for accessibility. | 1 | Fundamental |
| Construction of AC and DC Circuits | This course will define series circuits and parallel circuits as well as series-parallel circuits. This course will also discuss resistance and current in each type of circuit. | 1 | Intermediate |
| Construction Project Documentation: Navigating Pitfalls | "This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education." | 2 | Fundamental |
| Contactors and Relays | Contactors and Relays is a course designed to familiarize participants with the operation and use of magnetic contactors and relays. After completing this course, participants should be able to describe the operating principles of magnetic contactors and relays, and explain how both types of devices are used in electrical systems. They should also be able to describe the components and operation of low-voltage remote control switching systems. | 2 | Intermediate |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Create a Windows App Using Free Tools and No Coding | Won't it be cool to create your own app? There is so much joy in seeing your app published or finding unique ways to share your content. Although, many of us do not have coding knowledge or simply do have the time to learn a programming language. Those obstacles should not stop us for publishing our ideas and content. Nor should the barrier of expensive development costs - either in the form of programmers or software tools or web services. This course is aimed at those who may or may not have content created but are unable to share their content via mobile or desktop apps because of time, costs, or IT resources and has been put together to show you how you can accomplish your goal of creating and publishing your own app without enduring the pain of learning a complicated code or paying additional fees. The course begins with the concepts and the design considerations one might think about when developing their app. And since this course uses whatever free resources are currently available, time is spent discussing the limitations present. After framing the design and objectives, the course creates apps step by step. The course builds upon itself as it progresses. The learning starts simple and then adds more complex content. At the end - and actually even at points up to the end - you will have your very of Windows app to share, use, and publish in the Windows store. There are options to port your app over to other operating systems and platforms briefly discussed at the end. You will have the pride and joy of knowing you accomplished something great. It will open your mind to all the possibilities that await and ignite your creative and problem solving drive. Ready? Let's build something.' | 2.5 | Intermediate |
| Creating a Code of Conduct | Ever wonder if a certain behavior is appropriate or out of bounds? Perhaps it is appropriate in one setting, between certain people, but not appropriate in another setting. Well, wonder no more! This course will take you through the steps to determine appropriate conduct and to navigate tricky or touchy ethical situations. To do or not to do . . . that is the question employs application exercises and a rich multi-media process, to increase your awareness and understanding and to provide you with a guide to navigate the sometime murky waters of ethics and appropriate code of conduct. | 0.5 | Intermediate |
| Creating Word Templates | "Don't re-create documents over and over! Learn about templates in Word to increase your productivity, save time, and create consistency.<br>Being able to consistently create documents that have a uniform look and adhere to company standards can be challenging and time consuming. Use the templates feature in Word to do this effortlessly. Learn basics about effective design and using headings, sections, and your company's logo, fonts, and colors to produce professional and effective documents that will stand out!" | 0.5 | Fundamental |
| Critical Facilities - Emergency Electric Power | "Providing emergency electric power is of critical importance for several types of facilities, and can be mandated by regulatory agencies. For example - emergency egress lighting, hospital emergency rooms, cooling for medical supplies storage, and protection from interruption of public utilities. These systems also help in preventing significant economic losses and, in some cases, disastrous results from natural events.<br>This course presents key information regarding emergency electric power. Included in the topics covered are emergency vs. standby systems, applicable codes, terms and definitions, system components, environmental considerations, and fuel systems. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information extremely valuable." | 2 | Fundamental |
| Critical Thinking and Problem Solving | Are you constantly firefighting? Does it seem as though problems always appear at the last minute or just before the weekend? In this course, you will learn strategic steps to prevent much chaos and solve new or recurring problems. Through the use of application exercises and rich multimedia process, your ability to think critically and solve problems effectively and in a timely manner will increase thus propelling your end results to new heights. | 0.6 | Intermediate |
| Cybersecurity Overview | The convenience of web access makes it easy to forget that we need to protect and care for our information. This introductory course provides an overview of cybercrime and cybersecurity, including the basics of cybersecurity along with the effects of cybercrime, the types of cyber threats and how users are susceptible. | 0.25 | Fundamental |
| Data Centers: Operations & Maintenance, Upgrades, and Expansions | "If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turnover, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a "lights-out" data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations & Maintenance, or "O&M" program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later.<br>In addition to a robust O&M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over $100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena." | 1 | Intermediate |
| Data Centers: Trends, Technologies, and Efficiencies | Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are. | 1 | Intermediate |
| DC Fundamentals Review | The fundamental relationships between current voltage and resistance in direct current (DC) circuits are basic to understanding all types of electricity and electrical circuitry. This course is intended as a general review of basic electrical concepts and circuit analysis for participants already possessing some background in electrical theory. | 1 | Intermediate |
| DC Generator Basics | A simple direct current (DC) generator consists of an armature coil with a single turn of wire. The armature coil cuts across the magnetic field to produce a voltage output. This course describes commutation in a DC generator, the major parts of a DC generator, and three basic ways a DC generator can be constructed. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 1 | This course provides participants with an introduction to direct current (DC) motor controller classification and parts identification, controller diagram symbols and schematics, and how DC motor controllers change motor speed and direction. | 1 | Intermediate |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| DC Motor Controller Maintenance, Part 2 | This course introduces participants to the basic steps for troubleshooting a direct current (DC) motor controller, different types of controller diagrams and how to read them, methods for identifying mechanical problems, and the maintenance needed to prevent or correct these problems. | 1 | Intermediate |
| DC Motor Maintenance | Anyone who is responsible for maintaining direct current (DC) motors in an industrial facility has to have a thorough understanding of the specific techniques and procedures that are used to keep DC motors in top operating condition. Familiarity with the ways that DC motors operate and the methods used to classify and identify them is also important. To help prepare electrical maintenance personnel for working on DC motors, this course contains specific information covering DC motor operation and classification as well as detailed descriptions of procedures for troubleshooting, disassembling, inspecting, and reassembling a typical DC motor. | 1 | Intermediate |
| DC Power in the Data Center | Alternating Current (AC) power has been the default for data centers due to many factors, such as equipment availability and familiarity. As companies and agencies push for better energy efficiency, Direct Current (DC) power may become a more viable choice for energy, reliability, and availability of a data center. This course walks through a typical data center power chain then compares using DC power with discussion on five of the most typical DC power voltages in use today. | 1 | Intermediate |
| Design of Utility Infrastructure | Utilities and their infrastructure are one of the main facilities that support our modern society. From drinking water to telecommunications, underground utilities provide the basic services for our communities. Thus, their design is a critical component of construction projects. Through this interactive online course, engineers, architects, planners and contractors will learn design criteria for the design of different utility types, from gravity to pressurized flow facilities. | 2 | Fundamental |
| Designing and Specifying Pervious Concrete | This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydrologic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast. | 2 | Intermediate |
| Designing Beautiful Documents | "Create perfect documents with five easy techniques.<br>Have you ever noticed that some documents look perfect? They have a certain polish, a certain style, that tells everyone who sees them that THIS was created by a professional?<br>There is a science to creating beautiful documents. In this course, communications guru Jamie Gillenwater demonstrates the five techniques that anyone can use to create beautiful, professional, respectable documents." | 0.5 | Fundamental |
| Designing Foundation Repairs | What is causing that crack in the building? How can you repair it? Building foundations provide structural support to buildings but are often damaged and rendered nearly useless by many natural events (hurricanes, drought, excessive rain, etc.). Most foundations can be repaired and returned to their original load capacity, but each foundation damage case can present unique challenges depending on the extent of damage, the foundation material used, the foundation depth in the ground, and the loads being carried by the foundation. In this interactive online course, we will discuss different types of building foundations and several types of causes of foundation failures. We will also cover methods for foundation repair, as well as new materials and technologies used in repair. | 2 | Intermediate |
| Designing PEX Plumbing Systems to Optimize Performance and Efficiency | What is PEX and how should you best utilize it in your project? Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide superior reliability, durability and safety. This interactive online course will demonstrate how the properties of PEX tubing can improve the health, safety and welfare of building occupants through reliable long-term delivery of clean water without pipe degradation. Many designers layout PEX plumbing in the same way as copper plumbing systems, without taking advantage of the material flexibility, and increasing installation costs. Other designers use too much pipe, potentially delaying delivery of hot-water to fixtures. Therefore, this course will also explain how PEX systems allow designers to reduce materials, save installation time, and provide faster delivery of hot-water to fixtures by comparing 12 design examples. Finally, using empirical test data generated by NAHB-RC (now Home Innovations Research Labs) comparing various PEX designs, this course will also provide answers about the best ways to design PEX plumbing systems to optimize performance. | 1 | Fundamental |
| Developing an Employee Safety Training Program | People working in facilities, and in industry, need a solid foundation with respect to safety training, and leading people, and employees. So, this course will provide you with that solid foundation that will help you in developing a valid, and detailed, safety training program for your group. This program can then be applied to your organization's specific safety program's requirements for employee training. This course will provide you with information on Emergency Action Plans, Medical Emergency Plans, Lockout/Tagout requirements, Confined Space Entry Procedures, and other critical topics. | 1 | Fundamental |
| Developing and Implementing an EPA RMP | "Any facilities that manufacture, use, store or otherwise handle certain extremely hazardous chemicals will be subjected to the EPA's Chemical Accident Prevention regulations at 40 CFR part 68.To comply with this regulation, a facility must develop and submit an EPA Risk Management Plan, or RMP, and implement it in the facility.<br><br>The primary goal of an EPA RMP is to protect communities from the release of toxic or flammable chemicals that are prone to cause immediate, serious harm to public and environmental health.<br><br>Thus, it is important for the practitioners to have in-depth knowledge on how to develop an EPA Risk Management Plan so it can be applied in their respective facilities.<br>This course will provide the practitioners and participants with an overview of the EPA Risk Management Plan, the history of the RMP Rule, and requirements for compliance with the EPA's 112(r) Risk Management Program rule (40 CFR Part 68). The different program levels of an EPA RMP will be discussed, in addition to steps for developing a Risk Management Plan.<br><br>The course will also address the differences between OSHA PSM and EPA RMP Program Regulations, different elements of a RMP Plan, and how to conduct a hazard assessment.<br>Details on dispersion modeling and consequence modeling and the selection and application of these models will be covered in this course, as well as risk communication strategies and the requirements for an Emergency Response Program." | 2 | Fundamental |
| Developing Performance Goals & Standards: 01-The Value of Planning | Experience the importance of planning and developing goals for your team. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Developing Performance Goals & Standards: 02-Creating Performance Standards | Identify and set performance standards that are S.M.A.R.T. (specific, measurable, attainable, results-oriented, and time-framed). | 1 | Intermediate |
| Developing Performance Goals & Standards: 03-Your Path to Developing Performance Goals and Standards | Learn and apply the five-step process for setting and discussing team member performance goals. | 1 | Intermediate |
| Developing Performance Goals & Standards: 04-Mastering Developing Performance Goals and Standards | Practice Developing Performance Goals and Standards in a full scenario situation. | 1 | Intermediate |
| Developing Performance Goals & Standards: 05-Developing Performance Goals and Standards Health Check | Test your ability to apply Developing Performance Goals and Standards concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Developing Your Leadership Style | Want to know all the details? Prefer to oversee? Like to be involved? Everyone has a different style, whether in dress and music or in leadership. In this course you will learn to identify your personal leadership style and how to incorporate your style into any role through the use of application exercises and a rich multimedia process. Knowing your style will allow you to be more effective in choosing team members, managing up or down, and in getting your own work done. | 1 | Intermediate |
| Diagrams: Blueprints | This course is designed to familiarize participants with the basic features of construction blueprints. After completing this course, participants should be able to describe various types of blueprints, identify lines, symbols, and abbreviations that are commonly found in blueprints, and explain how to properly care for blueprints. | 2 | Intermediate |
| Digital Transformation: Benefits of a Digital Corporate Culture | When we talk about digital transformation, we usually think about the adoption of modern devices, changes in corporate processes, or the development of a new business model. However, we don't usually think about how the workforce will respond. Regardless of what industry the organization operates in, or what the current culture looks like, having a digital corporate culture can benefit an organization. This course will highlight some of these benefits. | 0.2 | Intermediate |
| Digital Transformation: Challenges Organizations Face by Not Embracing Technology | Some organizations view digital transformation as costly, unnecessary, time-consuming, and not worth the investment. Others admit to not being able to grasp the complexity of the technology. While these concerns are understandable, not embracing digital tools can create challenges for organizations. This course will highlight and discuss several of these challenges. | 0.2 | Intermediate |
| Digital Transformation: Five Ways a Digital Transformation will Alter Day-to-Day Operations | When integrating digital technology into a business infrastructure, its important to understand how it will redefine the organization from the inside out. A digital transformation is disruptive. The shockwaves it sends throughout the organization will be felt by executives, employees, business partners, customers, clients, and potentially the public at large. To better understand what changes an organization may face, this course will discuss five ways a digital transition will alter day-to-day operations. | 0.2 | Intermediate |
| Digital Transformation: Four Areas to Consider When Evaluating a Digital Transformation | "Digital transformation may mean rethinking things from the ground up and implementing digital technology where necessary. This might require a careful analysis of all areas to determine what systems will improve productivity and fuel corporate growth. To get started, here are four areas that organizations should consider: Communication, Productivity, Marketing. Security " | 0.2 | Intermediate |
| Digital Transformation: Four Steps to Implementing a Digital Transition | Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition its important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course. | 0.2 | Intermediate |
| Digital Transformation: Things to Consider Before Making Changes | All organizations need a digital transformation strategy. However, don't fall into the trap of thinking that this is accomplished by simply adding more technology. Before creating a strategy, it's important to consider the impact the transition will make both inside and outside the organization. This course will discuss four things to do before making changes. | 0.2 | Intermediate |
| Digital Transformation: What is Big Data? | Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course you'll learn what this means for businesses and how Big Data is already transforming different industries. | 0.2 | Intermediate |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Digital Transformation: What is Blockchain? | Bitcoin, Ethereum and other cryptocurrencies made headlines in 2017 and 2018 and began disrupting commerce, finance, and currency in a variety of ways. The technology behind cryptocurrency is known as blockchain, and it has created fresh opportunities for businesses and financial institutions around the world. In this course you will learn about how blockchain works, why its gaining popularity, and how its being used in organizations today. | 0.2 | Intermediate |
| Digital Transformation: What is Digital Transformation? | Changes in technology continue to shape our day-to-day lives and alter the way we interact with the world around us. Changing technology has also prompted - and sometimes forced - organizations to restructure the way their business operates. These changes made by organizations to integrate developing digital processes is known as Digital Transformation. In this course, you'll learn more about what Digital Transformation is, and how its impacting almost every organization. | 0.2 | Intermediate |
| Digital Transformation: What is the Internet of Things? | We live in a connected world where devices can connect to the internet and send information to people, devices and systems. This network of connected things is known as The Internet of Things or IoT. In this course you will learn how the Internet of Things is evolving and explore the different areas where IoT is having the biggest impact. | 0.2 | Intermediate |
| Direct and Alternating Current | Most electric power is generated and consumed in the form of alternating current (AC), and most meters that measure energy consumption are designed to measure AC power. Many of the principles associated with direct current (DC) circuits also apply to AC circuits. This course describes variations that account for differences between DC power and AC power. | 1 | Intermediate |
| Discrimination Prevention | Discrimination is a big deal. Regardless if you are the one being discriminated against, the one doing the discriminating, or if you are seeing it happen around you, discrimination is real and it can be a serious problem. In 'Dealing with Discrimination in the Workplace' you will learn the steps to 1) help you recognize when discrimination is occurring, 2) identify how to acknowledge the situation, and then 3) know how to proceed to eliminate the problem. Through the use of application exercises and a rich multimedia process, you will gain the skills you need to truly identify, address, and deal with discrimination. | 0.5 | Intermediate |
| Distillation: Control Systems | "What are the goals of a distillation system? Simply put, they are to maintain an optimum production rate and to meet specifications that are set for its products.<br>In this interactive, online course, you will examine various factors that must be controlled if a distillation system is to meet its goals, and you will see how control systems provide the control that's needed.<br>During operation, different balances must be maintained and you must understand process temperatures, how they can affect the distillation process, and how they can be controlled. The final component is product composition; you will discover how the compositions of a distillation system's products are controlled." | 0.5 | Intermediate |
| Drinking Water Quality - Monitoring & Security | "It's understood that drinking water should be suitable for human consumption and for all usual domestic purposes. So, what is suitable drinking water? Ideally, drinking water should not contain any microorganisms known to be pathogenic or capable of causing diseases. It should be free from chemical contamination, and it should have the right physical properties.<br>In this interactive, online course, we will discuss key information regarding drinking water monitoring and security required to ensure the health, safety, and welfare of the general population being served by water supply facilities. We will discuss the minimum parameters recommended for monitoring drinking water, and the surveillance process and products used for monitoring water quality. We will also discuss the types of threats to facilities, and types of physical security elements that may be put into place to help protect these facilities." | 1 | Fundamental |
| Drinking Water Quality - Water Treatment Technology | Safe drinking water supplies are crucial to the health, safety, and welfare of society. In this interactive, online course, we will discuss key information regarding water treatment technology of drinking water, including characteristics and capabilities of water treatment processes, source water quality, distribution system considerations, and residuals management. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information critical to the successful operation of drinking water related facilities. This course addresses critical factors that affect health, safety and welfare of the population being served by the water treatment system. | 1 | Fundamental |
| Ductile Iron Pipe | Ductile iron pipe is used for many applications, primarily for potable water lines and sanitary sewage pumping stations, but also for drainage systems. The qualities of ductile iron make it superior to other available products. Along with its predecessor, gray cast iron, it has a very long history of use, particularly compared to many other available products. This 2-hour interactive on-line course discusses the characteristics of ductile iron pipe, the advantages of this type of pipe and the design criteria for proper selection of pressure class. It also briefly discusses joint types available and their applications and the old system of classification for ductile iron (such as Class 52). The material is taken from the Ductile Iron Pipe Research Association. There will be a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Effective Delegation: 01-What to Delegate | Learn and apply the delegation process to determine which tasks to delegate to team members (and to whom to assign each task). | 1 | Intermediate |
| Effective Delegation: 02-Issues in Delegating | See and practice the issues that arise in delegation discussions and how to effective handle them. | 1 | Intermediate |
| Effective Delegation: 03-Your Path to Delegating | Learn and apply the five-step process for delegating tasks to members of your team. | 1 | Intermediate |
| Effective Delegation: 04-Mastering Delegating | Practice Delegating in a full scenario situation. | 1 | Intermediate |
| Effective Delegation: 05-Delegating Health Check | Test your ability to apply Delegating concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Effective Discipline: 01-Taking Disciplinary Action | See and rate examples of disciplinary action and understand the importance of designing messages for the team member. | 1 | Intermediate |
| Effective Discipline: 02-The Disciplinary Process and Documentation | Learn the standard procedure for disciplining team members and practice focusing on team member behaviors in documentation. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Effective Discipline: 03-Responding to Team Member Reactions | Since team members often react negatively to discipline, practice how you will respond in these situations. | 1 | Intermediate |
| Effective Discipline: 04-Your Path to Effective Discipline | Learn and apply the five-step process for effectively disciplining a team member. | 1 | Intermediate |
| Effective Discipline: 05-Mastering Effective Discipline | Practice Effective Discipline in a full scenario situation. | 1 | Intermediate |
| Effective Discipline: 06-Effective Discipline Health Check | Test your ability to apply Effective Discipline concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Efficient Pump Operation | This course is designed to teach participants how pumps in generating units can be operated efficiently. After completing this course, participants should be familiar with pump operating characteristics such as capacity, head, power, efficiency, and minimum net positive suction head. They should understand how these characteristics can be plotted and read on pump curves, and how pump curves can be used. In addition, they should be able to describe the effects of multiple pump operation and low flow on pump efficiency. | 1 | Intermediate |
| Electrical 1: Cable Tray | Cable Tray is a course designed to familiarize participants with cable tray components and installation techniques. After completing this course, participants should be able to identify the types of sections and the types of fittings used in cable tray assemblies, explain how cable tray is supported, and explain how cable tray sections are spliced. They should also be able to size cable tray for specific numbers and types of conductors. | 2 | Intermediate |
| Electrical 1: Commercial and Industrial Wiring | This course is designed to familiarize participants with wiring devices and wiring techniques used at commercial and industrial sites. After completing this course, participants should be able to identify various types of switches, enclosures, control devices, and receptacles. They should also be able to describe basic techniques for planning and installing branch circuits, mounting boxes, and working with conductors. | 2 | Intermediate |
| Electrical 1: Electrical Diagrams | This course is designed to familiarize participants with various types of electrical diagrams. After completing this course, participants should be able to explain why symbols are used on electrical diagrams, and how to obtain information from a title block and an equipment location index. They should also be able to explain how to use each of the following types of diagrams: block, single line, schematic, wiring, connection, interconnection, and raceway. | 2 | Intermediate |
| Electrical 1: Electrical Safety | The purpose of this course is to give participants a general understanding of basic principles of electricity and electrical safety. At the conclusion of this course, participants will have a basic understanding of various aspects of working safely around electrical equipment. | 2 | Intermediate |
| Electrical 2: Boxes and Fittings | Boxes and Fittings is a course designed to familiarize participants with various types of boxes and fittings used in electrical installations. After completing this course, participants should be able to identify different types of boxes and explain how to properly size outlet boxes, pull boxes, and junction boxes. They should also be able to identify different types of couplings, locknuts, and bushings, and explain what seal-off fittings are and how they are installed. In addition, they should be able to describe the three classes of hazardous locations that are identified in the National Electrical Code® (NEC®) and describe requirements for safely installing boxes and fittings in hazardous locations. | 2 | Intermediate |
| Electrical 2: Circuit Breakers and Fuses | Circuit Breakers and Fuses is a course designed to familiarize participants with the use of overcurrent protective devices in electrical installations. After completing this course, participants should be able to describe hazards associated with faults and overloads, describe the operation and common types of circuit breakers and fuses, and describe basic procedures for troubleshooting problems with circuit breakers and fuses. | 2 | Intermediate |
| Electrical 2: Electrical Lighting | Electric Lighting is a course designed to familiarize participants with various types of lamps and lighting fixtures and how install them. After completing this course, participants should be able to explain how the human eye sees and describe the characteristics of light. They should also be able to compare and contrast various types of lamps, and they should be able to explain how to install various types of light fixtures. | 2 | Intermediate |
| Electrical 2: Grounding | Grounding is a course designed to familiarize participants with both system grounding and equipment grounding. After completing this course, participants should be able to describe different types of grounding, describe National Electrical Code® (NEC®) requirements associated with system grounding, and describe how to size and install grounding electrode conductors. They should also be able to describe NEC requirements associated with equipment grounding, describe how to size equipment grounding conductors and bonding jumpers, and explain how to make sure that a grounding system is effective. | 2 | Intermediate |
| Electrical 2: Installation of Electrical Services | Installation of Electric Services is a course designed to familiarize participants with considerations associated with installing a commercial or industrial electric service. After completing this course, participants should be able to describe various types of electric services for commercial and industrial installations, and they should be able to identify and describe the main components of those services. They should also be able to explain how to select and install equipment for a single-phase service and a three-phase service. | 2 | Intermediate |
| Electrical 2: Motors: Theory and Application | This course is designed to familiarize participants with the operation and use of various types of electric motors. After completing this course, participants should be able to describe the basic construction and operation of direct current (DC) motors, alternating current (AC) induction motors, and AC synchronous motors. They should also be able to explain how motor speed can be controlled and how motors and motor circuits can be protected from damage, and they should be able to interpret the information on a motor nameplate. | 2 | Intermediate |
| Electrical Equipment: AC and DC Motors | This course is designed to familiarize participants with basic concepts associated with the operation of electric motors. After completing this course, participants should be able to explain the basic principles of motor operation and describe the basic operation of a simple alternating current (AC) motor and a simple direct current (DC) motor. They should also be able to identify the parts of a typical AC motor and a typical DC motor, and describe the function of each part. | 2 | Intermediate |
| Electrical Equipment: Electrical Production and Distribution | This course is designed to familiarize participants with basic concepts associated with the production and distribution of electric power for use by process systems. After completing this course, participants should be able to explain, in general terms, how off-site power comes into a plant and how a plant can generate power on site for its own use. They should also be able to identify and explain the functions of the major components in an electrical distribution system. In addition, participants should be able to describe general hazards associated with these systems and explain how the possible effects of the hazards can be minimized. | 2 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical Equipment: Motor Controllers and Operation | This course is designed to familiarize participants with basic concepts associated with what motor controllers do and how they do it. Typical steps for starting up, checking, and shutting down motors are also covered. After completing this course, participants should be able to explain how motor controllers control and protect motors. They should also be able to describe how to start up a motor, perform operating checks on a motor, and shut down a motor. | 2 | Intermediate |
| Electrical Fire Alarm Systems | This course presents key information regarding electric fire alarm systems. Fire alarm systems are of critical importance for several types of facilities, and are mandated for specific facilities by regulatory and government agencies. We will cover system fundamentals, and the various types of systems available and in use today - specifically, voice and alarm communications, automatic alarm signals, controls and signal initiation, transmission and notification. | 1 | Fundamental |
| Electrical Installations 1: Electrical Laws, Components and Circuits | "The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter"s Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time." | 1 | Fundamental |
| Electrical Maintenance: Battery Systems | This course is designed to introduce participants to industrial battery systems, battery cells, and how to inspect and test batteries. After completing this course, participants should know the characteristics and basic operation of a typical battery system and its components. They should also understand how to inspect and perform basic tests on industrial batteries. | 2 | Intermediate |
| Electrical Maintenance: Fasteners | This course is designed to familiarize participants with various types of fasteners used in electrical work. After completing this course, participants should be able to describe common types of threaded and non-threaded fasteners and identify applications for which each type might be used. They should also be able to describe basic procedures for installing fasteners. | 2 | Intermediate |
| Electrical Maintenance: Introduction to the NEC | This course is designed to familiarize participants with the organization and layout of the National Electrical Code® (NEC®). After completing this course, participants should be able to use the NEC to locate specific types of information. | 2 | Intermediate |
| Electrical Maintenance: Relays, Part 1 | The purpose of this unit is to teach the basic principles of protective relays and to introduce directional and non-directional relays. The unit begins with the basic theory of protective relays, commonly used types of relays, and a brief explanation of how these relays are used. Additional details and examples of applications are provided for directional and non-directional relays. At the conclusion of this unit, the trainees should have a basic understanding of how protective relays work. They should be able to explain the need for protective relays and to list commonly used types of relays and their functions. They should also be able to explain how directional and non-directional relays work and give examples of situations in which they are used. | 1 | Intermediate |
| Electrical Maintenance: Relays, Part 2 | The purpose of this unit is to continue the development begun in Relays, Part 1 by introducing differential and pilot relays and discussing routine relay maintenance. The relays examined are differential relays and pilot relays used for differential comparison, phase comparison, and transfer tripping. The unit demonstrates how to inspect and maintain relays and how to put them in and out of service. At the conclusion of this unit, trainees should be able to explain how differential and pilot relays work and give examples of situations where they are used. They should also be able to describe how to approach routine inspection and maintenance and how to put a relay in or out of service. | 1 | Intermediate |
| Electrical Maintenance: Troubleshooting Electrical Circuits | This course is designed to familiarize participants with the use of basic troubleshooting procedures to troubleshoot problems in electrical circuits. After completing this course, participants should be able to identify and describe the main steps of a basic troubleshooting procedure and use the procedure to troubleshoot problems in electrical equipment and electrical systems. | 2 | Intermediate |
| Electrical Systems | This course explains the basic components of an electrical distribution system, its function, and typical monitoring and protective equipment in the system. | 1 | Intermediate |
| Electrical Systems and Equipment, Part 1 | This course focuses on three of the major components in an electrical system: unit transformers, switchyards, and substations. This course also describes how these components fit into an electrical system, how they operate, and how they are checked to make sure they continue to operate properly. | 1 | Intermediate |
| Electrical Systems and Equipment, Part 2 | Electrical power systems deliver electricity to customers and to the plant. This course teaches how electrical power systems deliver electricity to customers and how electrical power systems adjust voltage and current for more economical power delivery. It also shows how electrical power systems deliver electricity to plant equipment and how the station service system can help ensure a continuous flow of power to the plant in the event of certain equipment malfunctions. Finally, it describes the essential service system, which helps operators maintain control during an emergency. | 1 | Intermediate |
| Electrical Wiring: Cables and Conductors | This course is designed to familiarize participants with the basic construction and installation of electrical cables and conductors. After completing this course, participants should be able to describe the basic construction of cables and conductors, and describe how conductors are classified and rated. They should also be able to describe factors that affect the installation of a conductor for a specific application, and describe how to make splices and terminations. | 2 | Intermediate |
| Electrical Wiring: Conduit Installation | This course is designed to familiarize participants with the basic concepts of conduit and conduit fittings, and typical methods of cutting, bending, and installing conduit. After completing this course, participants should be able to describe the basic types of metallic and nonmetallic conduit, describe common types of conduit fittings, and describe procedures for cutting, bending, and installing metallic and nonmetallic conduit. | 2 | Intermediate |
| Electrical Wiring: Splices and Terminations | This course is designed to familiarize participants with common types of hardware and accessories used in making electrical splices and terminations, and how to prepare for and make various types of connections. After completing this course, participants should be able to identify basic types of terminals, connectors, tools, and materials used in making splices and terminations, and describe the applications for which they are suitable. They should also be able to describe how to make some common types of electrical splices and conductor terminations. | 2 | Intermediate |
| Electromagnetic Relays | When a fault occurs, current increases and voltage decreases. The increased current causes excessive heating, which depending on where the fault occurs, can result in a fire or an explosion. If the fault is not quickly isolated, it can cause damage that may result in loss of service. Various types of control systems are used to detect and isolate faults with minimum disturbance. A key component of all of these control systems is the protective relay. This course examines the functions and operation of some types of protective relays. | 1 | Intermediate |
| Email and Messaging Safety | Email is the primary means of attack from cyber-perpetrators. This course provides an overview of cybercrime via email, and how to employ safe email and messaging practices to avoid and help prevent cyber threats, attempts at fraud and identity theft. | 0.25 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Employee Discipline | Hate those awkward moments when you have to 'deal' with inappropriate or ineffective behavior? Make those moments an experience of the past by learning how to appropriately discipline an employee. With proper implementation of the skills taught in this course, you will find that those awkward moments are few and far between resulting in a better experience for everyone, as well as your overall results. | 1 | Intermediate |
| Energy Conversion Analysis (RV-10839) | Energy conversion devices are an important element of progress of society. Understanding their limitations and efficiencies is vital to our energy-informed and energy-conscious society. The ideal, simple, and basic power cycles of Carnot Cycle, Brayton Cycle, Otto Cycle, and Diesel Cycle, the ideal power cycle components and processes of compression, combustion, and expansion, and the ideal compressible flow components of subsonic nozzle, diffuser, and thrust are presented in this 4-hour online course. In the presented power cycles, power cycle components and processes, and compressible flow analysis, air is used as the working fluid. | 4 | Intermediate |
| Energy From Waste | How can you obtain energy from waste? This interactive, online course will cover potential sources of waste available for energy recovery - hot exhaust gases, cooling water, and heat lost from hot equipment surfaces and heated products. Systems utilized for Energy from Waste technologies will also be reviewed. This information is useful training for design professionals, facility managers, and system maintenance personnel. | 1 | Fundamental |
| Energy Management Exercise, and Safety | Have time set aside, but no energy to use the time well? Learn the skills of managing your energy to find yourself getting more done and feeling better while you do it! Through the effective use of application exercises and a rich multimedia process, this course will take you on a journey of discovery to implement a workable plan to energize your life and get more done. | 0.5 | Intermediate |
| Energy Modeling Outcomes - Design with Confidence | What is energy modeling and how can it help in your next site design? We all know that having the right information earlier produces substantially superior results. Systematic early design energy modeling assists design teams and owners by clarifying the decision space, and bringing relevant information to the discussion. This interactive online course will help you discover the replicable methods to produce better information sooner as well as the incentive programs to look for that will subsidize these best practices. Building energy modeling and distributed generation systems will be covered so you will have all of the tools necessary to push for net zero building designs. | 1 | Intermediate |
| Equipment Drive Components: Gear, Belt, and Chain Drives | This course is designed to familiarize participants with basic concepts associated with the operation of gear drives, belt drives, and chain drives. After completing this course, participants should be able to describe the general function of gear drives, belt drives, and chain drives, and explain how each of these equipment drive components operates to transfer power from a driver to a piece of driven equipment. They should also be able to describe operator checks that are commonly performed on gear drives, belt drives, and chain drives. | 2 | Intermediate |
| Equipment Lubrication: Using Lubricants | This course is designed to familiarize participants with some of the methods and devices used to lubricate equipment components such as bearings. After completing this course, participants should be able to describe the use of hand grease guns, pneumatic grease guns, grease cups, and centralized lubricators. They should also be able to describe the basic operation of drip-feed oilers, oil baths, bottle oilers, ring oilers, and circulating oil systems. In addition, participants should be able to describe the use of contact seals, labyrinth seals, and mechanical seals, and to describe how valve packing is lubricated. | 2 | Intermediate |
| ESD Precautions | This course covers the principles of electrostatic discharge and the necessary precautions that should be taken to avoid damage to sensitive equipment. | 1 | Intermediate |
| Essential Lighting: The Language, Metrics & Process of Lighting Design | This 3-hour interactive online course provides a basic understanding of lighting, its properties, and the terminology used to define various aspects of lighting. From the ability to accurately describe characteristics of color and intensity of a light source, to understanding how we respond to light, you will come away with insights on how lighting can literally change your world - in ways that can be good or bad.The author provides numerous examples that allow the reader to relate the technical issues to the everyday experience. Everyone knows lighting from their experience of it. Understanding its metrics, how it can be manipulated to help us perform better, use energy more effectively, and improve our moods can be valuable not only to designers, but to anyone interested in their environment.The course also delves into how lighting design decisions are made, and the positive potential effects of good lighting design practice. Some examples of common, everyday lighting problems and solutions are discussed at the end of the course to bring the value of thoughtful lighting design into perspective.Understanding terminology and concepts discussed in this course will be important before advancing to additional lighting design topics.There will be a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Essential Skills of Communicating: 01-Empowering Leadership Communication | Utilize an empowering and dynamic communication process to increase team members motivation and commitment. | 1 | Intermediate |
| Essential Skills of Communicating: 02-Craft Clear and Concise Messages | Construct and express clear and concise messages in both written and spoken communication. | 1 | Intermediate |
| Essential Skills of Communicating: 03-Deliver Messages Designed for the Team Member | Deliver messages that address the interests of the listener. | 1 | Intermediate |
| Essential Skills of Communicating: 04-Listen To Communicate | Use Reflecting, Probing, Supporting, Advising to demonstrate active listening to others. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Essential Skills of Communicating: 05-Manage Nonverbal Behavior | Make verbal and nonverbal communication congruent to reinforce the intent of messages. | 1 | Intermediate |
| Essential Skills of Communicating: 06-Impactful Feedback | Provide the rationale for your feedback, whether to reinforce or improve performance. | 1 | Intermediate |
| Essential Skills of Communicating: 07-Mastering Essential Skills of Communicating | Practice the skills learned in Essential Skills of Communicating in a full scenario situation. | 1 | Intermediate |
| Essential Skills of Leadership: 01-The Work of Leaders | Distinguish between leadership and management tasks and familiarize yourself with the Leadership Achievement Path. | 1 | Intermediate |
| Essential Skills of Leadership: 02-Focus on Behavior | Base discussions about performance and work habits on behavior rather than on personalities and attitudes. | 1 | Intermediate |
| Essential Skills of Leadership: 03-Maintain or Enhance Team Member Self-Esteem | Acknowledge contributions, results and accomplishments to enhance self-esteem. | 1 | Intermediate |
| Essential Skills of Leadership: 04-Encourage Team Member Participation | Involve team members in goal setting, problem-solving and decision-making. | 1 | Intermediate |
| Essential Skills of Leadership: 05-Lead Effective Meetings | Deploy meeting management skills to meet the goals of the meeting in the available time. | 1 | Intermediate |
| Essential Skills of Leadership: 06-Mastering Essential Skills of Leadership | Practice the skills learned in Essential Skills of Leadership in a full scenario situation. | 1 | Intermediate |
| Essential Skills of Leadership: 07-Essential Skills of Leadership Health Check | Test your ability to apply Essential Skills of Leadership concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Essentials of Industrial Wastewater Treatment | High-quality fresh water is an increasingly rare and valuable commodity. The Earth contains a finite supply of water and the small fraction which is useable for drinking and other valuable uses will continue to come under increasing pressure. With a worldwide focus on water quality and management, the fate of wastewater generated by industry is more important than ever. Treating water for discharge or reuse, and minimizing the amount of water to be treated, are important concepts for the engineering, science or other professional to understand.This interactive online course will focus on considerations and technologies for treating industrial wastewater. Treatment of municipal and domestic wastewater, such as at publicly owned treatment works (POTWs), will be discussed briefly. | 1 | Fundamental |
| Essentials of Lean Manufacturing | What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to "think Lean" and apply Lean methods and tools to improve the quality and efficiency of your company. | 1 | Intermediate |
| Essentials of Six Sigma | Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, it's management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently. | 0.75 | Intermediate |
| Everyone is a Leader | For a time, the Disney company got some of its best ideas from the janitor. Leadership can be seen in any role and from any person. Using application exercises and rich multimedia, learn how to identify leadership potential and how to use the influence of unofficial leaders to everyones benefit. | 0.5 | Intermediate |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Excel Basics for Mac | "Get Started with Microsoft Excel - The Most Useful Software Ever Created. Excel can do almost anything crunch numbers, create lists, store data, edit budgets, and more. In this basics course well show you how to get started with Excel on a Mac, including using the most popular features. Whether you're a first-time Excel user, or if you just want to re-learn the fundamentals, this course is for you!" | 2.25 | Fundamental |
| Excel for Project Management | "Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information.<br>A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan." | 1 | Fundamental |
| Excel: Creating Dashboards | "Get More From Excel - Learn To Use Forms, Lookup Functions, Charts, Pivot Tables, and Slicers To Turn Data Into Answers. Crunching numbers is what Microsoft Excel does best - but how do you use those numbers to get the answers you need? This course will show you how to use advanced Excel features to turn massive amounts of data into visual, customizable dashboards. The ability to easily query and display information from your Excel data is a helpful tool for decision making, and this course will demonstrate five advanced Excel features (Forms, Lookup Functions, Charts, PivotTables, and Slicers) which will do just that." | 3 | Fundamental |
| Excel: Data Analysis With Pivot Tables | Get More From Your Excel With The Power Of PivotTables. Pivot Tables are the perfect tool to analyze large amounts of data in Excel. Being able to summarize, visualize, and tabulate your data makes PivotTables an important skill for anyone who uses Excel to store and report on data, and in this course Microsoft trainer Kathy Jones will show you how to effectively use the PivotTable tools in Excel 2013 and 2016. | 2.5 | Advanced |
| Excel: Introduction to PowerPivot | "Learn How To Transform Excel Into Your Big Data Power Tool<br>Power Pivot is an Excel add-in you can use to perform powerful data analysis and create sophisticated data models. With Power Pivot, you can mash up large volumes of data from various sources, perform information analysis rapidly, and share insights easily.<br>In this course well show you everything you need to know in order to install and start using Power Pivot in Excel." | 1.25 | Fundamental |
| Excel: Power Functions | "Learn to Use the 10 Excel Functions Recommended by the Experts<br>Excel provides over 400 functions to perform a variety of calculations within your data. With this many functions, its guaranteed you're missing out on some powerhouse formulas that can make your day easier. This course explores 10 functions the experts recommend to expedite your data analysis." | 1 | Fundamental |
| Existing Building Commissioning: Implementing Retrocommissioning on Your Project | What is retrocommissioning and how will it benefit your building? Learn about the retrocommissioning process and how to implement this process on an existing building, with lessons learned from a commissioning professional and Professional Engineers. This interactive online course will give a quick overview of commissioning and the benefits of commissioning for existing buildings, followed by how to implement retrocommissioning by walking the participant through each step of the process. Benefits of and difficulties with implementing the commissioning process on existing projects are evaluated. Finally, a sample case study is given which discusses lessons learned on the retrocommissioning implementation process. | 1 | Intermediate |
| Exit Routes, Emergency Action Plans & Fire Prevention Plans | A safe means of escape is crucial when it's necessary to quickly evacuate a building. This course will provide examples of some previous egress tragedies that well help you to understand critical means of egress requirements. You will learn how to develop an emergency action plan and a fire prevention plan that may be implemented in your facility so you can be ready if disaster strikes. | 1 | Fundamental |
| Explosive and Flammable Chemicals | A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented. | 1 | Intermediate |
| Facility Asset Management | Facility asset management is the process of taking care of things of value in and around a facility; equipment, buildings, systems, walls, roofs, sidewalks, parking lots, and so on. In this course you will learn about the components necessary to implement an effective asset management program. You will also learn about the relationship of asset cost to maintain and future capital expenditures, purchasing the appropriate quality assets and parts, documenting asset history and performance, critical asset analysis, failure mode and effect analysis (FMEA), auditing of the maintenance process, life cycle analysis, forecasting and budgets, and performance measures. | 1 | Fundamental |
| Facility Maintenance Management | Facility maintenance management is the logistical component of taking care of a facility, and involves managing the day to day maintenance requirements of a facility. In this course, you will learn about work request management, work planning and work scheduling, computerized maintenance management systems (CMMS), and communication methods and techniques associated with the maintenance function. You will also learn about how to address staffing concerns, how to address travel and transportation of your maintenance technicians, and backlog management. Also discussed are how to properly lead a facility maintenance team, and how to develop a long term facility maintenance management plan. | 1 | Fundamental |
| Facility Management Essentials | In this course, you will learn about the key principles you need to understand to be able to be a successful facility manager. You will learn about leadership and management skills needed in facility management, in addition to topics around business finance, staffing, work flow/asset tracking, work planning/scheduling and maintenance, management and craft training, performance measures, and customer/client communication and coordination. | 1 | Fundamental |
| False Alarm Prevention | Across the country, state laws are evolving on a constant basis to address the problem of false alarm signals. The daily operation of alarm companies across the United States is critical and essential to the success of reducing the number of false alarm dispatches. The problem of false dispatches will not be reduced on any significant level without a careful and constant review of these ordinances, as well as the conscientious application of aggressive procedures in designing, installing and servicing alarm systems, and training alarm system end users. This 2-hour online course provides solutions for the prevention of false alarms based on statistical information, as well as the application of technical and operational procedures. This course provides a foundation for alarm contractors to help reduce false alarms by educating their customers about proper alarm operation, the role of law enforcement, and the technical responsibility of the alarm contractor.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fans | Many processes and systems in an industrial facility require the movement of air or other gases. Air movement is important in applications such as heating and cooling, pollution control, combustion, and ventilation. One of the most common ways to move air and other gases in a controlled manner is with fans. This course identifies the major components of fans and describes the operation of various types of fans. The operator's role in keeping fans working properly is also examined. | 1 | Intermediate |
| Financial Management 1: Negotiating Contracts | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end.This is the first chapter of the "Financial Management for the A/E/C Firm" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Financial Management 2 & 3: Pricing for Profits, Generating Cash and Getting Paid | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly.<br>This is the second and third chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 2 | Intermediate |
| Financial Management 4: Accounting & Cash | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow.<br>This is the fourth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Financial Management 5: Strategic Planning & Budgeting | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively.<br>This is the fifth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Financial Management 6 & 7: Financial Controls, Monitoring & Project Budgeting | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs.<br>This is the sixth and seventh chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Fire Alarm Essentials | In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations. | 2 | Intermediate |
| Fire and Smoke Dampers Simplified | Fire and smoke dampers are essential components of fire and life safety systems of a building. Their operation prevents the spread of fire and smoke and allows building occupants to safely exit a building during a fire. Fire and smoke dampers are also vital to the integrity of fire and smoke rated building assemblies. Improper specifications, installation, actuation or simply the lack of fire and smoke dampers can result in damage to a building or worse, loss of human life. This interactive online course will discuss fire walls, fire barriers, smoke barriers, fire partitions and horizontal assemblies. | 1 | Intermediate |
| Fire Essentials and Fire Science | "According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for $329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard.<br><br>This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire." | 1 | Fundamental |
| Fire Water Systems – Storage, Pumping & Distribution | Having a readily available water supply for firefighting procedures is essential for protecting the health, safety, and welfare of the general public. This means water must be available and accessible in any weather condition. This interactive online course will teach you about water storage systems and design considerations for water sources. You will also learn about water pumping and distribution systems. | 2 | Fundamental |
| Furnace Fundamentals | An important part of an operator's job when working with any furnace is to make sure that the furnace is running efficiently in order to save fuel, maximize the amount o f heat that is produced, and minimize the amount of heat that is wasted. More importantly, careful furnace operation helps prevent explosions, injury, and damage to equipment.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Furnace Introduction | Furnaces are an important source of heat for many industrial facilities. Furnaces, which can also be referred to as fired process heaters, are basically enclosed structures that produce heat by the combustion of fuels. This course will review the major components that make up furnaces, explain how combustion takes place inside a furnace, and identify the different flow paths inside a furnace.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fuses | This course introduces participants to the basic components of various types of fuses, explains how fuses are rated and sized, and describes basic procedures for troubleshooting a cartridge fuse. | 1 | Intermediate |
| Gears - Overhaul | The purpose of this course is to provide participants with an overview of gearbox disassembly and reassembly. Replacing damaged gearbox components is an important part of a maintenance technician's job. Understanding how to safely and properly disassemble and reassemble a gearbox is essential to any gearbox repair or overhaul. At the completion of this course, participants will be able to describe checks, measurements, and installation procedures for gearboxes. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
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| Gears - Types and Characteristics | Gears are found in many types of equipment in industrial facilities. They are vital components, and a gear problem can cause a whole operation to come to a complete stop. This course covers what gears are, how they work, and different types found within industry. It also provides an overview of problems that may affect gears and how to prevent them. | 1 | Intermediate |
| Gender Identity: Changes Organizations are Making to Increase Awareness | Gender identity awareness is necessary to ensure equal respect and fair opportunities for everybody. So what does this mean for your organization? While every entity is unique and should consider the needs of their individual workforce, this course provides some basic steps you can take to better increase gender identity awareness. | 0.2 | Intermediate |
| Gender Identity: Understanding Gender-Neutral Restrooms in the Workplace | A gender-neutral restroom is, when we think about it, a simple idea. We use them in our homes without a second thought. However, in a workplace environment they are a topic of debate. This course will help you understand why gender-neutral restrooms matter and how they work. | 0.2 | Intermediate |
| Gender Identity: What does LGBTQIA+ mean? | When discussing gender identity and sexual orientation it's common to hear acronyms used to reference different groups, orientations, and identities. For several years, the most common acronym was LGBT, however to be more inclusive the acronym has evolved into many different forms. In this course we'll help you understand the pieces that make up the LGBTQIA+ acronym. | 0.2 | Intermediate |
| General Electrical Hazard Awareness for Site Safety | Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization. | 1 | Intermediate |
| Get It Done: Managing Email | "Take Control Of Your Inbox!<br>For many people email is a source of stress, when it really should be a valuable productivity tool. In this course well show you how to combine email best practices with the tools in Microsoft Outlook in order to effectively manage your email." | 1 | Fundamental |
| Get It Done: Sharing Calendars | "How Do You Let Everyone Know Whats Going On?<br>Its a common situation: you're working in an organization or department, and you need to share a calendar with your team. Whether its staffing schedules or company holidays, this course will demonstrate ten different ways you can share a calendar among your coworkers, including both physical (printed) and online calendars." | 1.5 | Fundamental |
| Get SMARTER with Goals | What is the difference between someone who simply has goals and someone who actually achieves their goals? The key isn't to work harder, it's to work SMARTER! The SMARTER goal setting system is the evolution of the SMART goal setting system that was introduced in the 1980's. In this course you will learn how to apply the S.M.A.R.T.E.R. goal setting system. You will understand the definition of each letter of the acronym S.M.A.R.T.E.R. and view real world examples of how it is applied to goal setting. In addition, you will have the opportunity to apply it to set your own goals and apply the methodology. Finally, you will be provided with additional strategies for achieving your goals. | 0.5 | Intermediate |
| Giving Feedback that Gets Results | Tired of giving feedback that falls on deaf ears? Learn how to give feedback that gets fantastic results with this effective leaders guide. Feedback can be much more than a criticism at the end of an event, in fact feedback can be both positive and negative and needs to be given not only strategically, but also consistently. Develop the skills to do exactly that through application exercises and a rich multimedia process. | 0.75 | Intermediate |
| Gmail Essentials 2015 | Power Your Gmail Account. Get The Maximum Benefit From All The Tools Gmail Has To Offer. Gmail Is One Of The Most Often Used, Under-Utilized Applications In The World. This Course Will Change The Way You Use Your Gmail Account - Guaranteed! | 2.25 | Fundamental |
| Green Building: Commercial High Performance Guidelines Part 1 | What is a high performance "green" commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, "green" commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures. | 5 | Intermediate |
| Green Building: Commercial High Performance Guidelines Part 2 | "Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance ""green"" commercial buildings.<br>This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment.<br><br>We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course." | 4 | Intermediate |
| Green Design: Economics of Green Building | In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies. | 2 | Intermediate |
| Green Design: Introduction to High Performance Building Design (Based on LEED v4) | "There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings.<br><br>In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable buildind design is also understanding th requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C)." | 3 | Fundamental |
| Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4) | There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C). | 2 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
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| Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4) | "In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system." | 1 | Fundamental |
| Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4) | "This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed." | 2 | Fundamental |
| Green Design: Introduction to Sustainable Water Systems (Based on LEED v4) | "The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places." | 2 | Fundamental |
| Green Design: Sustainable Daylighting Design (Based on LEED v4) | "Daylighting can be one of the most difficult "tools" in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits." | 1 | Intermediate |
| Green Landscape Design: Reducing the Urban Heat Island Effect | As the earth's average temperature increases, cities, which are often significantly warmer than the surrounding landscapes (the urban heat island effect), will be faced with higher energy needs, increased pollution and degradation of air quality. The world is becoming more and more urban - it is estimated that within 50 years 80% of the world's population will live in urban areas. This interactive online course will address how we can mitigate the heat island effect so our urban cities remain healthy, economically viable places to live. | 2 | Fundamental |
| Ground Fault Circuit Interrupters | Normally, electric current is designed to flow through circuits at levels predetermined to be safe and return to the power source. Occasionally, conditions are created where the current amount or path is altered from the specified design. This course describes differences in the types of abnormal current flow that can occur within an electrical circuit because of the altered conditions and how ground fault circuit interrupters can protect against electrical shock. | 1 | Intermediate |
| Grounding | Grounding is the chief means of protecting life and property from electrical hazards such as lightning, line surges, short circuits, and ground faults. Grounding also helps ensure the proper operation of a system. This course provides an overview of what grounding is, why it is necessary, and effective grounding techniques. | 1 | Intermediate |
| G-Suite Essentials (Google) | Learn How 11 Tools from Google Can Boost Your Productivity. G-Suite (aka Google Apps and Google Drive) is more than just cloud-based email. This powerful and popular cloud-based suite includes apps to help you illustrate, communicate, collaborate, and organize your work - or your life. In this course, we'll cover the top features you'll find in your G-Suite. | 2.25 | Fundamental |
| Hand Tools, Part 1 | Hand tools are used every day in construction, manufacturing, and industrial settings as well as for do-it-yourself projects at home. Hand tools can make it safer and easier to do many different kinds of jobs. This course discusses the proper use and general care of a wide variety of hand tools.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hand Tools, Part 2 | Maintenance mechanics work with a variety of hand tools to perform many jobs, so it is important for mechanics to understand the function and care of common hand tools. Mechanics should know how to select the correct tool for any given job and how to use tools efficiently and safely. This course discusses the proper use and general care of pliers, vises, clamps and punches. | 1 | Intermediate |
| Hazardous Waste Essentials | Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention. | 1 | Intermediate |
| HAZWOPER Air Monitoring | Airborne contaminants present the greatest danger to hazardous waste and emergency response workers. Air monitoring is required to identify and quantify airborne hazards, so appropriate protective measures can be implemented. An air-monitoring plan must be included as part of a site-specific Health and Safety Plan (HASP). This module will discuss the requirements of an air monitoring plan, the sensors used to detect hazardous conditions, and what actions should be taken based on monitoring results. | 0.6 | Intermediate |
| HAZWOPER Chemical Protective Clothing | Chemical protective clothing is often required when responding to emergencies involving hazardous materials. This module describes the various types of chemical protective clothing used during hazardous waste operations and emergency response. | 0.38 | Intermediate |
| HAZWOPER Chemical Protective Clothing Selection | Chemical protective clothing is selected by comparing its capabilities and limitations to the hazards and required tasks. It is important to remember that no material is completely chemical resistant, and no material is effective for all chemicals. This module will describe important factors for selecting appropriate chemical protective clothing. | 0.43 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
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| HAZWOPER Confined Spaces | All hazards typically found in regular work areas can also be found in confined spaces, but there are additional hazards that make confined spaces more dangerous. Confined spaces that present safety or health hazards require a permit for entry, so they are called permit-required confined spaces. This module will describe OSHAs permit-required confined space regulations and typical confined space emergency response procedures. | 0.51 | Intermediate |
| HAZWOPER Decontamination | Decontamination, or decon for short, is the removal of hazardous materials from workers and equipment to prevent adverse health effects. It is critical that all emergency responders are protected and off-site contamination is prevented. The correct approach must balance safety with responding in a timely manner to contain the incident. This module covers decontamination best practices. | 0.65 | Intermediate |
| HAZWOPER Emergency Response Plan | Planning is critical for safe, timely responses to hazardous material incidents. The HAZWOPER standard requires employers whose employees respond to releases of hazardous materials at any location to have a written emergency response plan. This includes both fixed-location employers like industrial facilities and those that deploy from a duty station to various locations, such as a fire department or emergency medical service. This module describes the required information in emergency response plans. | 0.46 | Intermediate |
| HAZWOPER ERG Introduction | The Department of Transportations Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries. | 0.38 | Intermediate |
| HAZWOPER Hazmat Physical Properties | The physical properties of a hazardous material provide information to help responders understand its behavior, whether in its container or after it has been released. This module describes the following physical properties: physical state, melting point, boiling point, vapor pressure, vapor density, specific gravity, expansion ratio, flash point, solubility, pH, reactivity, and toxicity. | 0.33 | Intermediate |
| HAZWOPER Incident Command System | An incident is any event that requires emergency response to protect life or property. OSHAs HAZWOPER standard requires all organizations that handle hazardous materials to use the Incident Command System (ICS). The ICS is a component of the National Incident Management System (NIMS) that provides a standard approach for incident management. ICS allows for the integration of facilities, equipment, personnel, procedures, and communication systems within a common organizational structure. ICS enables a coordinated response among various agencies, both public and private, and it establishes common processes for planning and managing resources. This module describes all aspects of the incident command system. | 0.7 | Intermediate |
| HAZWOPER Ionizing Radiation Safety | Radiation is energy emitted from a source that travels through space in a straight line at the speed of light. We are surrounded by radiation. Sunlight, radio waves, microwaves, and cell phone signals are all forms of low-energy radiation. These types of radiation are considered non-ionizing radiation and are relatively harmless. Ionizing radiation is radiation in the form of particles or electromagnetic waves that have enough energy to remove electrons from atoms in materials they strike. This module will focus on ionizing radiation, which can be hazardous. | 0.56 | Intermediate |
| HAZWOPER Medical Surveillance | HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and aren't experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed. | 0.4 | Intermediate |
| HAZWOPER Overview | Unexpected releases of hazardous materials pose a significant risk to workers and the general public. There are many causes of unexpected releases, such as human errors, equipment failures, or even natural disasters. To protect workers who work with hazardous materials, the Occupational Safety and Health Administration (OSHA) created the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). This module provides an overview of the HAZWOPER standard, who it applies to, and its requirements. | 0.35 | Intermediate |
| HAZWOPER Release Mitigation | "Emergency release response actions can be divided into three main steps:<br>1. Identify the materials that have been released<br>2. Assess the severity and risk and<br>3. Select and implement methods to mitigate the release.<br>Material identification and risk assessment are covered in other modules. This module focuses on the third step, release mitigation methods and their applicability." | 0.51 | Intermediate |
| HAZWOPER Respirators | Respirators are required when working around hazardous materials that present an inhalation hazard. A respirator is a personal protective device that covers at least the nose and mouth to reduce the amount of contaminated air inhaled by the user. This module will discuss the types of respirators typically used for hazardous waste operations and emergency response. | 0.7 | Intermediate |
| HAZWOPER Risk Assessment | The top priority of incident response is the safety of responders and the general public. Risk assessment is the most important aspect of an incident response because the incident cannot be managed safely if the problem and risks are not understood. Failure to do a risk assessment can result in serious injuries or death. Each incident is unique, so deciding what to do and when, can be difficult. This module will cover various hazard identification techniques to help you make better decisions when responding to hazardous material incidents. | 0.53 | Intermediate |
| HAZWOPER Safety and Health Program | HAZWOPER requires employers to have a written, site-specific safety and health program. The program must be designed to identify, evaluate, and control health and safety hazards and provide emergency response information. This module will provide an overview of the required safety and health program elements. | 0.25 | Intermediate |
| HAZWOPER Site Control | Whether responding to an emergency or cleaning up hazardous waste, control of the work site is essential. Each site is unique and many factors must be considered when securing it, including the hazards present, size of the site, and the proximity of the surrounding community. The movement of people and equipment at the site must be carefully managed to minimize worker exposure and protect the public from hazards. This course describes practices and procedures for establishing and maintaining control of the site. | 0.61 | Intermediate |
| HAZWOPER Toxicology | A chemicals ability to cause adverse health effects in people or animals is indicated by its toxicity. The more toxic a substance is, the smaller the dose required to produce a damaging effect. This module will help you better understand toxicity and exposure limit information so you can prevent dangerous exposures. | 0.51 | Intermediate |
| Health Effects Caused by Mold | In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans. | 1 | Fundamental |
| Healthy Practices: Nutrition, Exercise, and Safety | We all know it is important to have healthy habits in our lives, but there is a big difference between knowing, and doing. Through application exercises and a rich multimedia process, this course teaches simple strategies to help you implement simple daily practices that lead to a healthy life. | 0.5 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Heat Exchanger Basics | Heat exchangers are typically used to transfer heat between fluids using conduction, convection, and radiation. This course details the three heat transferring methods used by heat exchangers as well as how heat exchangers are classified. It also illustrates common heat exchangers types such as shell-and-tube, plate, extended surface, and regenerative heat exchangers. | 0.25 | Intermediate |
| Heat Exchangers: Condensers and Reboilers | There are many different types of shell-and-tube heat exchangers, and each one is designed to accomplish a specific function in a process. In this interactive, online course, you will explore condensers and reboilers, two shell-and-tube heat exchangers that are designed to do specific jobs. | 0.5 | Intermediate |
| Heat Exchangers: Cooling Towers | "In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons,<br>it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling<br>tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower." | 0.5 | Intermediate |
| Heat Exchangers: Operation of Shell and Tube Types | "Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger." | 0.5 | Intermediate |
| Heavy Truck Braking System and Braking Techniques | The single most important component in any vehicle is the braking system, especially on heavy trucks. The tractor portion of a tractor-semi trailer rig may have ten or more valves controlling the air flow to the brakes. This program reviews the types of braking systems found on large trucks versus cars and illustrates the importance of properly maintaining the braking system. | 0.25 | Fundamental |
| HEPA High Efficiency Filters | This webcast covers essential information regarding HEPA high efficiency filters and their importance in HVAC air handling systems. The course will include technical information about HEPA filters, as well as how HEPAs are constructed, tested, and maintained. We will also cover documentation regarding testing and maintenance of this important HVAC system component. | 1 | Fundamental |
| Hiring Practices | Is she married? Do we have to post externally? These and other potentially loaded questions often appear during discussions regarding hiring. It is vital to understand what is appropriate and what is not when hiring practices is the name of the game. However, more than simply providing information, this course will take you through application exercises and provide a rich multimedia experience so that you can immediately apply what you have learned to your current situation. | 1.25 | Intermediate |
| HVAC - Heating and Cooling | HVAC systems are used to maintain clean, conditioned air in enclosed spaces. The term "conditioned" refers to the fact that the temperature and humidity of the air are maintained within desired ranges. This module describes the two most common cooling systems as well as heating devices used in HVAC systems. | 0.5 | Intermediate |
| HVAC - Hot Water and Ventilation | The purpose of heating, ventilation, and air conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial, and industrial facilities. This module contains information on hot water heating systems, air distribution systems, and HVAC control systems. | 0.5 | Intermediate |
| HVAC Acoustics | What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics. | 3 | Fundamental |
| HVAC Basics | The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and allow temperature- or humidity- sensitive equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This module will identify safe work practices to use when working around HVAC systems and the most common HVAC system components. | 0.25 | Intermediate |
| HVAC HEPA Filters | HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms. | 1 | Fundamental |
| HVAC System Fans | Centrifugal or Axial? Do you know how to select the best fan for your project? This interactive online course presents critical information regarding HVAC fans, motors and controls that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fan fundamentals, various types of fans, performance curves, fan vibration and sound, as well as drive motors and VFD drive systems. This course will serve as an important reference for people involved in HVAC fans design, selection, and installation, as well as operations. | 3 | Fundamental |
| Hydraulics: Actuators | This course is designed to familiarize participants with the various types of actuators that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of single-acting cylinders, double-acting cylinders, vane motors, gear motors, piston motors, and partial rotation actuators. | 2 | Intermediate |
| Hydraulics: Component Inspection and Replacement | This course is designed to familiarize participants with typical procedures for removing, inspecting, reassembling, and reinstalling hydraulic system components. After completing this course, participants should be able to describe how to remove, inspect, reassemble, and reinstall hydraulic valves, pumps, and cylinders. | 2 | Intermediate |
| Hydraulics: Diagrams | This course is designed to familiarize participants with hydraulic system schematic diagrams. After completing this course, participants should be able to interpret symbols that are used on hydraulic system schematic diagrams and use schematic diagrams to trace fluid flow through various types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Fluid and Reservoirs | This course is designed to familiarize participants with the fluid used in hydraulic systems and with the basic functions and uses of filters and strainers, reservoirs, conductors, and accumulators. After completing this course, participants should be able to describe the functions, characteristics, and types of fluid that may be used in hydraulic systems. They should also be able to describe typical uses of filters and strainers, describe the components and accessories of typical reservoirs, describe various types of conductors and fittings, and describe the basic functions and common uses of accumulators in hydraulic systems. | 2 | Intermediate |
| Hydraulics: Principles and Circuits | This course is designed to familiarize participants with the principles of hydraulic system operation and with the components and operation of some typical hydraulic circuits. After completing this course, participants should be able to explain how force is transmitted through a liquid and how pressure and flow are related in a hydraulic system. They should also be able to describe the main components and basic operation of several types of hydraulic circuits. | 2 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hydraulics: Pumps | This course is designed to familiarize participants with the various types of pumps that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of gear pumps, vane pumps, and piston pumps. | 2 | Intermediate |
| Hydraulics: Routine Maintenance | This course is designed to familiarize participants with tasks associated with the routine maintenance of hydraulic systems. After completing this course, participants should be able to describe general considerations associated with routine maintenance. They should also be able to describe procedures for performing external inspections and for maintaining some system components. | 2 | Intermediate |
| Hydraulics: Troubleshooting | This course is designed to familiarize participants with general steps for analyzing problems in hydraulic systems. After completing this course, participants should be able to explain how to identify problems in hydraulic systems and describe common problems associated with hydraulic system components. | 2 | Intermediate |
| Hydraulics: Valves, Part 1 | This course is designed to familiarize participants with the basic design and operation of various types of valves used in hydraulic systems. After completing this course, participants should be able to describe the functions of flow and pressure in a hydraulic system; and identify and describe various types of manually adjusted valves, sliding spool valves, and spring-biased valves. They should also be able to describe various ways in which valves can be actuated. | 2 | Intermediate |
| Hydraulics: Valves, Part 2 | This course is designed to familiarize participants with the functions performed by various types of valves used in hydraulic systems. After completing this course, participants should be able to describe how valves control flow rate, flow direction, and pressure in a hydraulic system. They should be able to describe the basic operation of a pressure-compensated flow control valve, a temperature-compensated flow control valve, various types of flow control circuits, a pressure reducing valve, a relief valve, a sequence valve, and a counterbalance valve. | 2 | Intermediate |
| IICRC 7 Hour General Mold Program | This is a 5-part, interactive course. Part one of this course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. The mold remediation industry is expected to follow the "Standard of Care". Who defines what that is? Where can it be found? Who is the enforcer? Part 2 of this course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure. Part 3 of this course examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. Part 4 of this course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap. Part 5 of this course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms. | 7 | Fundamental |
| IICRC 7 Hour Mold Health Effects and Science Program | This program covers how mold growth can affect the health and safety of building occupants. The program also gives a little bit of a scientific background of mold. This program has 5 lessons with a test at the end of each lesson which must be passed with a score of 70% or better to move on to the next lesson. The 5 lessons are:Lesson 1: More Than Mold -Health Effects Associated With Mold and Water DamageLesson 2: Health Effects Caused by MoldLesson 3: Mold Safety and HealthLesson 4: The Science of MoldLesson 5: Mold Sampling | 7 | Fundamental |
| IICRC 7 Hour Mold Remediation Program #1 | This is a 7-part, interactive course. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. In part 1, we will visit the terminology and the recent trends to equip you to make better decisions for your team and project. Part 2 will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. Part 3 of this course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. Part 4 of this course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. Part 5 will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. Part 6 shows you how to "set the bar" so the technicians know what to do, clients are happy, and each project has a better chance of profit and success. Part 7 covers equipment to use, how to use it, and how to take care of it. This course allows you to quickly learn from practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list. | 7 | Fundamental |
| Improving Work Habits: 01-Performance Issue or Poor Work Habit? | Distinguish between a performance issue and a poor work habit, which require a different problem-solving process. | 1 | Intermediate |
| Improving Work Habits: 02-Describing the Work Habit | Practice describing the team member's poor work habit focusing on behavior and fact, not attitudes or opinions. | 1 | Intermediate |
| Improving Work Habits: 03-Keep Ownership with the Team Member | What you should say in the context of work habit discussions when team members try to deny responsibility for the poor habit. | 1 | Intermediate |
| Improving Work Habits: 04-How Would You Empathize? | Use empathy in your discussions is important for team member self-esteem and buy-in. | 1 | Intermediate |
| Improving Work Habits: 05-Your Path to Improving Work Habits | Learn and apply the five-step process for improving poor work habits shown by your team members. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Improving Work Habits: 06-Mastering Improving Work Habits | Practice Improving Work Habits in a full scenario situation. | 1 | Intermediate |
| Improving Work Habits: 07-Improving Work Habits Health Check | Test your ability to apply Improving Work Habits concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Increase Your Listening & Communication Power | Employees, Projects, and Even Entire Businesses Fail Because They Don't Communicate Effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible. | 1 | Fundamental |
| Increase Your Listening Power (Effective Communication) | Employees, projects, and even entire businesses fail because they don't communicate effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible. | 1 | Fundamental |
| Increasing Building Energy Efficiencies: Policies and Practice | While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EPAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings. | 2 | Fundamental |
| Industrial Pneumatic Technology: Aftercoolers, Driers, and Receivers | "Air compressors are used in industry to store compressed air or inert gases, which can then be used to power air motors, cylinders, and other pneumatic devices. Clean, dry air is essential for pneumatic systems to function properly, so it is important to remove moisture and contaminants to ensure optimum performance of the system.<br>In this interactive online course, we will identify some components of air compressors, including aftercoolers, dryers, receivers, and air distribution systems." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Air Preparation | "Pneumatic components and systems require compressed air that is free of contamination. No matter how well a system is designed, if contaminated air gets into the components, it can interfere with proper circuit operation.<br>In this interactive, online course, we will cover the types of contaminants that can be found in the air used in pneumatic systems and identify ways to clean it up." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Check Valves, Cylinders, and Motors | Selecting the right cylinders, check valves, and motors in pneumatic applications involves more than just picking them off the shelf. In this interactive online course, we will cover check valves and two types of pneumatic actuators: cylinders and motors. We will discuss the functions of each in a pneumatic system. We will also cover formulas used in sizing cylinders, cylinder volume, compression ratio, and more. | 1 | Intermediate |
| Industrial Pneumatic Technology: Compressors | In order to accomplish useful work with a pneumatic system, we need a device that can supply a sufficient amount of air at a desired pressure. The device that performs this function is called a compressor. In this interactive online course we will describe the principles of air compressor operation and give you details about the types of positive displacement and dynamic air compressors. We will instruct you in identifying compressor capacity and we'll give you parameters for selecting a compressor system. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Control of Pneumatic Energy | First off, energy that is transmitted through a pneumatic system must be directed and under complete control at all times. If it isn't, useful work may not be done, and machinery or machine operators could be harmed. In this interactive online course you will learn the basics of the pneumatic system, its operation, and its control. You will see diagrams of the components and get explanations for how the various parts work together. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Directional Control Valves | A directional control valve is an essential component that enables flow into different paths from different sources in hydraulic and pneumatic machinery. This fundamental part controls the stop, start and direction of flow. In this interactive, online course we will cover the different types of directional control valves and explain the methods used to classify these valves. We will discuss the use of poppet valves, and identify the different types of shear action valves. Lastly, we will discuss replacing valves and correct sizing for flow rate. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Energy Transmission | Do you know how compressors are used? Were you aware that gas is actually a fluid? In this interactive online course we will discuss the basics of gases and pressure. We will also discuss compressors and how pressure is measured. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Excess Flow Valves, Boosters, and Sequence Valves | How much do you know about Pneumatics? In this online, interactive course we'll be examining a few pneumatic components and showing how they can be used in some basic circuits. We'll begin with a definition and move through descriptions of the components and circuits. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Flow Control Valves, Silencers, and Quick Exhausts | "Flow control valves used in pneumatic circuits affect actuator speed. Understanding how flow control valves operate will allow you to increase or decrease flow rate to meet the needs of your pneumatic circuits.<br>This interactive online course will teach you about several types of adjustable flow control valves available. You will learn how flow control valves operate by reviewing different pneumatic circuit examples. Additionally, you will learn how an orifice is used to control flow rate. You will also learn about special purpose devices used in pneumatic circuits." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Force Transmission | "Pneumatic systems work because of a special property of fluids and the way these fluids transmit force and pressure. Understanding how fluids transmit energy will allow you to maintain your pneumatic control systems at desired operating conditions. This interactive online course will teach you about the different sources of pneumatic energy along with how force is carried through gases and liquids. Additionally, you will learn ways compressed air is used in pneumatic systems. You will also learn about calculation methods for determining how much pressure is generated in gases." | 0.5 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Innovative Heat Pump Technology | Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology. | 1 | Fundamental |
| Insulators | Insulators, or nonconductors, are materials with electrons that are tightly bound to their atoms and require large amounts of energy to free them from the influence of the nucleus. Examples of insulators are rubber, plastics, glass, and dry wood. This course introduces participants to electrical insulators and their physical properties. In addition, it describes the various uses of insulators as well as some of the materials that are used as insulators. | 1 | Intermediate |
| International Building Code & More: Construction Types and Building Sizes | "Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved." | 1 | Fundamental |
| International Building Code & More: Means of Egress | The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course.John Wiley & Sons, Inc. Copyright © 2011 All rights reserved. | 3 | Fundamental |
| International Building Code (IBC) - Assembly Spaces | "This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications.<br><br>The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council." | 3 | Fundamental |
| International Building Code Significant Changes to 2012 Edition | "The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council" | 3 | Fundamental |
| Internet and Computer Policy | As the internet grows, a touch of the screen can take you through boundaries previously only dreamed of. But do you know which boundaries it is okay to cross (or even encouraged) versus which to not even mention to you that now exist? Using application exercises and a rich multimedia process, this course will take you through basic internet protocol to keep you and your employees safe and focused. | 0.5 | Intermediate |
| Interviewing Skills for Employees | What to wear? What to say? When to follow-up? The process of interviewing for a position can be nerve racking to say the least. Tell Me About Your Weaknesses takes you through a typical interview process and prepares you for the what you may encounter. Through application exercises and a rich multimedia process, you will learn top skills to ease your nerves and prepare you for any interview. | 0.5 | Intermediate |
| Interviewing Skills for Managers: Conducting an Interview | Can I ask this? Will she be a good fit? Who else should I invite to the interview? When you are on the other side of the table, there are still many questions to answer in order to have a good interview. Using application exercises and a rich multimedia process, you will learn the skills to conduct effective interviews in this timely course designed to help you get the right people in the right seats. | 0.5 | Intermediate |
| Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings | This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED). | 3 | Fundamental |
| It's my Job! Career Growth | While you may have a boss and frequent interaction with HR (Human Resources) your career is YOUR career and therefore YOUR responsibility to manage. In this instructive course, learn key steps to identifying what you want out of your career and how to make it happen through application exercises and a rich multimedia process. | 0.5 | Intermediate |
| Janitorial Safety | Janitorial workers have many varied responsibilities. It would be easier to talk about what tasks they DON'T perform, than what they actually do on a daily basis. Regardless of how many different tasks they perform or how busy they are, the simple truth is that their safety should be a companies top priority. This program trains your employees on how to identify the common hazards that janitorial staff face on a daily basis and the steps they can take to minimize risk. It also includes both English and Spanish versions on one DVD. Topics covered also include: Personal Protective Equipment, Back Injury Prevention,Bloodborne Pathogens, Slips, Trips and Falls, Electrical Safety, Chemicals | 0.25 | Fundamental |
| Kirchhoff's Laws | Kirchhoff's two laws reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. This course introduces Kirchhoff's voltage and current laws and explains how to use these laws to calculate the voltage and current of circuits. | 1 | Intermediate |
| Kitchen Safety | With the kitchen being one of the busiest departments in your establishment, employees may be tempted to take shortcuts when it comes to safety. New and experienced kitchen staff will benefit from watching this program as they learn the potential hazards present in the kitchen environment and what action to take to reduce the risk of accidents or injuries.Topics covered also include:Prevention of slips, trips and fallsKnife use and safetyKitchen machineryFire and burn preventionChemical and hazardous materials | 0.25 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Ladder Safety | How much training have you had to use, store, and maintain a ladder properly to prevent falls and injuries? Working on ladders is a necessary part of most jobs in construction, maritime, and general industry. However, the use and care of ladders are not always as easy as it appears for the worker. Training is necessary to know the tolerances of the ladder, its safety features, and how to use the ladder. There have been many reported deaths and serious injuries from improper ladder use such as falls, electrocutions, and slips. This interactive online course will give you the information needed to be aware of the hazards related to ladders and best practices for using ladders. | 0.5 | Intermediate |
| Lead Contamination of Public Water Systems | Lead contamination of drinking water is a major topic of concern across the country, particularly in areas with aging lead pipes. Lead contamination in Flint, Michigan; Washington, DC; and Newark, New Jersey, has focused attention on America's decaying pipes. At least $384 billion of improvements are needed to maintain and replace essential parts of the country's water infrastructure to through 2030, according to the US Environmental Protection Agency. While these improvements are underway, treatment technologies can be utilized to significantly limit the migration of lead into the potable water supply. This interactive online course will describe these technologies and opportunities for implementation. | 1 | Fundamental |
| Lead Safety in Construction: Keeping You Safe and Compliant | Lead exposure is a major health issue. Exposure to lead can cause brain damage, paralysis, kidney disease and even death however, there are many methods to protect workers from exposure. In this one-hour interactive course, we will discuss these and other acute and chronic symptoms. We'll discuss how lead is used in construction and identify the workers that are the most vulnerable to these risks. You'll be introduced to OSHA's Lead Standard on the responsibility of employers and how it's designed to protect workers. Finally, we'll go over the methods to reduce exposure to lead, including engineering controls as well as the proper protection for workers such as the use of personal protective equipment. | 1 | Fundamental |
| Lead with Strengths | It is common to focus on our weaknesses, however weakness will not make you excel. If you want to be an effective leader, it is important to focus on and learn to lead with your strengths. Everyone has strengths. Things they are naturally good at. Do you know your strengths and how they can help you to be an effective leader? This guide will teach you how to identify and lead with your strengths. | 0.5 | Intermediate |
| Leading Engaging Zoom Meetings | Maximize your meetings in Zoom. Meeting virtually doesn't have to be boring talking heads on a screen! If you know how to use the tools Zoom provides, you can lead engaging meetings where everyone can participate. Learn the settings you'll need to begin and the basics for sharing your screen, using whiteboards, annotation, and polls. Then, move into more complex meeting structures like breakout rooms for small group collaboration and how to manage them. End it with guidelines to heighten interest, participation, and engagement. | 1 | Intermediate |
| Lean Manufacturing: Continuous Improvement and the PDCA Cycle | Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes. | 0.5 | Intermediate |
| Lean Manufacturing: Determining the Voice of the Customer | The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a businesses success and describes how to anticipate and meet customer needs and requirements once this data is captured. | 0.5 | Intermediate |
| Lean Manufacturing: Kaizen | Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet todays challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day. | 0.5 | Intermediate |
| Lean Manufacturing: Kanban | Did you know the word "Kanban" is of Japanese origin and translates to "billboard" or "signboard"? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it. | 0.25 | Intermediate |
| Lean Manufacturing: Poka-Yoke | This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction. | 0.25 | Intermediate |
| Lean Manufacturing: Pull Systems | This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While well introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes. | 0.5 | Intermediate |
| Lean Manufacturing: Standardized Work | This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting. | 0.5 | Intermediate |
| Lean Manufacturing: Value and Waste | Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value. | 0.5 | Intermediate |
| Lean Manufacturing: Value Stream Mapping | Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool. | 0.5 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lean Manufacturing: Visual Management | Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information. | 0.25 | Intermediate |
| LEED v4 - Certified Buildings Under the O&M and BD+C Categories | This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings. | 1 | Fundamental |
| LEED v4 - Operations and Maintenance | "Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings.<br>The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings.<br>The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings." | 2 | Fundamental |
| LEED v4 and Data Center Construction | Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment. | 2 | Fundamental |
| LEED v4 and the Future of Green | The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criterions and its impact on the future of sustainable new construction. | 1 | Intermediate |
| LEED v4 for Commercial Office Buildings | This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest "bang for your buck". Real life relational stories are included to help reinforce some of the concepts and actions. | 1 | Fundamental |
| LEED v4 for Existing Buildings: Operation & Maintenance (EBOM) | This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance. | 2 | Fundamental |
| LEED v4 for Healthcare Facilities | This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest "bang for the buck". Real life relational stories are included to help reinforce some of the concepts and actions. | 1 | Fundamental |
| LEED v4 for Hospitality Projects | This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest "bang for the buck". Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System. | 1 | Intermediate |
| LEED v4 for Interior Design + Construction | Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only "green" with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources. | 1 | Fundamental |
| LEED v4 for New Construction Projects | This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4. | 2 | Fundamental |
| LEED v4 for Retail Projects | This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest "bang for the buck". Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System. | 1 | Intermediate |
| LEED v4 for School Buildings | In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest "bang for the buck". We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform. | 1 | Fundamental |
| LEED v4: Building Design and Construction | Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories | 1 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Legionella Prevention and Control | In 1977, the Centers for Disease Control and Prevention (CDC) identified a condition known as Legionella pneumophila, which is a waterborne disease responsible for 34 deaths at an American Legion convention in Philadelphia. This interactive online course presents the causes and risk factors for Legionella contamination and some of the problems associated with Legionella in water systems in commercial buildings. Other topics include the ANSI/ASHRAE 188-2015 Standard and testing methodology and frequency. | 0.5 | Intermediate |
| Lighting Controls Essentials | "Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions.<br><br>This interactive online course covers the ""big picture"" of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels." | 2 | Intermediate |
| Maintenance of Air and Oil Circuit Breakers | Circuit breakers are devices that open or close a set of electrical contacts to interrupt or complete an electrical circuit. A switchgear is a self-contained, enclosed assembly of circuit breakers and related components. Both circuit breakers and switchgear serve to protect plant circuits from various electrical problems. They can switch power on and off, and they can isolate circuits on which work is being performed. Electrical maintenance personnel are responsible for keeping circuit breakers and switchgear working properly and for performing periodic inspections and any necessary repairs. This course covers the operation and maintenance of high-voltage circuit breakers and switchgear (4 KV and above) that are typically used for in-plant distribution of electrical power. Many high-voltage circuit breakers used for transmission purposes consist of three single-phase breakers connected to a common operating mechanism. However, the distribution breakers discussed in this course are three-phase breakers. | 1 | Intermediate |
| Maintenance of High-Voltage Circuit Breakers | After completing this course, you should be able to describe the basic operation of an oil circuit breaker, an air-magnetic circuit breaker, a vacuum circuit breaker, and an SF6 gas puffer circuit breaker. You should also be able to explain how each type of circuit breaker extinguishes an arc, and you should be able to describe basic procedures for racking out high-voltage circuit breakers and performing routine maintenance and testing on them. | 1 | Intermediate |
| Maintenance of Low-Voltage Circuit Breakers | Circuit breakers and switchgear are among the most common, yet critical, components of an industrial electrical system. Circuit breakers are devices that interrupt or complete electrical circuits. They protect systems and equipment from the effects of excessive current, and they provide a way to switch power on and off and isolate circuits or equipment on which work is being performed. Switchgear is basically a self-contained, enclosed assembly of circuit breakers and auxiliary devices. Part of your responsibility involves keeping circuit breakers and switchgear working properly. So, it is important for you to have a good understanding of how circuit breakers work and the types of maintenance procedures that are typically performed on them. | 1 | Intermediate |
| Managing Complaints: 01-The Difficulties of Managing Complaints | Discover the difficulties of managing team member complaints and how to overcome these issues. | 1 | Intermediate |
| Managing Complaints: 02-Handling Complaints Using Active Listening | Use active listening skills to effectively handle team member complaints. | 1 | Intermediate |
| Managing Complaints: 03-Your Path to Managing Complaints | Learn and apply the five-step process for effectively handling complaints from your team members. | 1 | Intermediate |
| Managing Complaints: 04-Mastering Managing Complaints | Practice Managing Complaints in a full scenario situation. | 1 | Intermediate |
| Managing Complaints: 05-Managing Complaints Health Check | Test your ability to apply Managing Complaints concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Managing Stress at Work | Eu-stress and Di-stress. One positive, one negative. One can push us to new levels of achievement, the other can kill. In this course, learn the difference between positive and negative stress, and how to manage both to help you achieve the results you desire. Reduce the negative stress in your world by using application exercises and a rich multimedia process. Check process to identify pain points and take action to regulate the stress you experience. | 0.5 | Intermediate |
| Managing Up: Strengthening Business Relationships | Have a great rapport with your employees and your peers? You're not done yet! Learning how to manage up is a key component of any successful career. Through application exercises and a rich multimedia process, this course will teach you what you need to know to create positive relationships with those you report to. | 0.5 | Intermediate |
| Mastering Access 2016, Basics | "Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules<br>Microsoft Access lets ordinary users develop powerful apps customized for their business needs.<br>In this course experienced Microsoft Access trainer Kathy Jones will walk you through building your first Microsoft Access database, including creating tables, using queries, and implementing forms and reports." | 3 | Fundamental |
| Mastering Access 2016, Intermediate | "Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules<br>Microsoft Access lets ordinary users develop powerful apps customized for their business needs.<br>In this course experienced Microsoft Access trainer Kathy Jones will build upon the basics of tables, queries, forms, and reports covered in the Basics course. Starting with the basics of relational database design, this course will expand your knowledge of Microsoft Access by covering topics such as table relationships, query joins, subdatasheets, field validation, parameter queries, and more." | 2.75 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering Excel 2016 | "The World Is Filled With Two Kinds Of People: A Handful Of People Who Are Masters Of Excel, And The Millions Of Others Who Wish They Were. If you've mastered Microsoft Excel 2016 then you have one of the most practical and valuable skill sets in all of modern business. A spreadsheet guru can work wonders - from organizing lists, to creating multi-layered, interactive reports, to revealing answers to business-critical questions like ROI, budget allocations, tracking expenditures, and more. This course covers everything you need to know about Microsoft Excel 2016, from the very basics to the most advanced features and functions. Note: This course covers all the objectives required in the Microsoft Office Specialist exam 77-727. This course includes all of the modules from the Basics and Intermediate courses, as well as 26 additional, more advanced, training modules." | 11.5 | Advanced |
| Mastering Excel 2019 - Advanced | "There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to use links, Lookup functions, Data Validation, Macros, data tables, and more." | 4.3 | Fundamental |
| Mastering Excel 2019 - Basics | "There are two kinds of people: Those who are masters at Excel, and those who wish they were When you master Excel, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wondersfrom organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course is your first step towards becoming an expert at using Excel 2019." | 4.5 | Fundamental |
| Mastering Excel 2019 - Intermediate | "There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to manage data, charts, and tables, and how to use powerful tools such as Pivot Tables, Pivot Charts, Slicers, Timelines, and more. This is our most requested training course! If you learn to use Excel 2019 or Excel 365, you will start to see how useful it is in your life—from formatting your grocery list to calculating complex ROI values. If you are comfortable with the basics of Excel, let our Microsoft Certified Trainer, Kathy Jones, walk you through more advanced topics that will take your spreadsheets to the next level and help you to be more efficient in analyzing your data. Topics covered include: Working with named ranges Inserting functions Using advanced sorting and filtering techniques Inserting TablesApplying advanced Conditional Formatting Inserting charts and graphics Applying advanced charting tools Working with Pivot Tables, Pivot Charts, Slicers, and Timelines" | 5 | Intermediate |
| Mastering Google Drive (2020) | "Learn to collaborate, store, share, and access your files any time from any device. It's time to leave attachments behind. Google Drive is an accessible, secure, and free tool for collaborating, sharing, editing, and storing your files in the cloud. If you have a Google account, you already have a Google Drive! In this course, Google expert Laurie Sherrod shows you how to make the most of your Google Drive including all the tips and tricks that will make it easy and fast to get started. It's already integrated with other Google Apps like Gmail, Google Docs, and Google Sheets. By the end of this course, you will understand the purpose and features of Google Drive and be ready to use the application to store, edit, and share files and folders any time and from any device." | 1.25 | Fundamental |
| Mastering Microsoft Project 2016 – Part 1 | "In this course PMP and Certified Technical Trainer Christina Tankersley will familiarize you with the basic features and functions of Microsoft Project Professional 2016 so you can use it effectively and efficiently in your real-world environment. This course covers the critical knowledge and skills a project manager needs to create a project plan with Project 2016 during the planning phase of a project. In other words, if your manager assigns you to lead a project, this course will enable you to draft a project plan with Project 2016 and share it with your supervisor (and others) for review and approval." | 2.25 | Intermediate |
| Mastering Microsoft Project 2016 – Part 2 | "In this course, PMP and Certified Technical Trainer Christina Tankersley will demonstrate how to use the features and functions of Microsoft Project Professional 2016 to effectively manage your project plans. This course covers the skills a project manager needs in order to manage a project plan created with Microsoft Project 2016. From updated task progress, work, and costs to creating reports, and including advanced topics such as sharing resources and linking project plans, this course covers everything you need to know in order to manage your projects using Microsoft Project." | 2.25 | Intermediate |
| Mastering Microsoft Teams (2019) | "Conversations, Channels, and Chatbots: Learn How To Get The Most from Microsofts New Communications Hub - Teams The ability for teams to work together productively is perhaps the most important function in any business, and its the central focus of the new Microsoft Teams application. From file sharing and co-editing to video calls, persistent chat, screen sharing, and more, learn how Microsoft Teams gives you the tools to stay in touch and get work done with your colleagues and partners. Updated for 2019, this course includes new and updated material, including Shifts, Whiteboard, Praise, and Calls. We also discuss best practices for getting the most from your Microsoft Teams" | 5 | Fundamental |
| Mastering Office 365 (2018) | "Learn To Organize And Maintain Your Virtual Office Using Microsoft 365: The Powerful, Everything-You-Need-In-One-Easy-Bundle. Online Suite Office 365 is far more than classic Microsoft Office. Easy, collaborative tools like OneDrive, Teams, Planner, and Forms combine with traditional Microsoft apps to form a powerful productivity-boosting tool - and in this course we'll show you how to tap into all the power Office 365 has to offer! Updated for 2018 with all-new modules covering Microsoft Teams, Forms, To-Do, Stream, and Delve, with updates for Outlook online, navigation, Planner, and more - over 20 new and updated video lessons!" | 11 | Intermediate |
| Mastering OneNote 2016 | "Organize Your Work & Life Into Pages, Sections, and Notebooks! OneNote is a powerful tool both for managing your own notes or idea, and for collaborating with others. In this course trainer Kathy Jones will walk you through everything you need to know to be efficient with Microsofts incredibly popular note-taking platform." | 2.5 | Intermediate |
| Mastering Outlook 2016 | "From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master." | 6.25 | Intermediate |
| Mastering Outlook 2016 Advanced | "From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master." | 3 | Advanced |
| Mastering Outlook 2016 Basics | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Is The First Step In Becoming An Outlook Master!" | 3.25 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering Outlook 2019 - Advanced | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Teaches You to Make the Leap from Outlook User to Outlook Master!" | 2 | Advanced |
| Mastering Outlook 2019 - Basics | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be managed automatically or handled in a fraction of the timeif the Outlook user knew how to use the proper tools. This Course is the First Step to Becoming an Outlook Master!" | 2.25 | Fundamental |
| Mastering PowerPoint 2016 | "Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged." | 8.25 | Intermediate |
| Mastering PowerPoint 2016 Advanced | Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 3.5 | Advanced |
| Mastering PowerPoint 2016 Basics | Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 4.75 | Intermediate |
| Mastering PowerPoint 2019 - Advanced | "Learn advanced features to get the most out of PowerPoint 2019 or PowerPoint 365.<br>Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made—not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged." | 5 | Fundamental |
| Mastering PowerPoint 2019 - Basics | "Making PowerPoint 2019 Easy & Effective<br>Using PowerPoint effectively is a crucial skill for any business professional. Whether it's designing a presentation for a meeting, creating a handout, or even creating and exporting a custom video, PowerPoint 2019 is a tool that everyone should feel comfortable using. In this Bigger Brains course, our PowerPoint guru Kelly Vandever walks you through the basics of getting started with PowerPoint 2019." | 4.75 | Fundamental |
| Mastering QuickBooks Desktop 2018 | Learn The Useful And Powerful Features And Tools In QuickBooks Pro, Premier, and Enterprise. Do you feel like you don't have time to learn how to use some advanced tools and functions in QuickBooks because you have other important work to do - like gathering or inputting data into QuickBooks? This course is a great way to get up to speed on QuickBooks 2018, with many time-saving lessons that can change the way you think about QuickBooks. | 3 | Intermediate |
| Mastering QuickBooks Online 2018 | Become A QuickBooks Online Guru. QuickBooks Online brings traditional QuickBooks accounting to a cloud-based solution, and this course will show you everything you need to know to manage your customers, vendors, invoices, bills, checks, and online payments through QuickBooks Online. | 4.25 | Intermediate |
| Mastering Word 2016 | "Learn Everything You Need to Know About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word, from the very basics to the most advanced features." | 9.75 | Advanced |
| Mastering Word 2016 Advanced | "Learn More About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules<br>Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word." | 2.5 | Advanced |
| Mastering Word 2016, Basics | Learn The Basics Of Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley, we'll show you everything you need to know to start harnessing the power of Microsoft Word. | 3.6 | Fundamental |
| Mastering Word 2016, Intermediate | Learn More About Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley we'll show you everything you need to know to start harnessing the power of Microsoft Word. | 2.5 | Intermediate |
| Mastering Word 2019 - Advanced | "Learn the powerful advanced skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons.<br>Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on intermediate skills in Word 2019 or Word 365 to create more professional and effective documents." | 2.5 | Fundamental |
| Mastering Word 2019 - Basics | "Learn the Basics of Microsoft Word 2019Delivered in Easily Searchable, Highly Informative Content Lessons<br>Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer, Barbara, Evers, well show you everything you need to know to start harnessing the power of Microsoft Word." | 3.5 | Fundamental |
| Mastering Word 2019 - Intermediate | "Learn intermediate skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on basic skills in Word 2019 or Word 365 to create more professional and effective documents. Topics covered include: Working with tables and charts including performing calculations and linking to data in an Excel workbook Creating text styles, list styles, and table styles Applying document themes Inserting building blocks (Quick Parts) Using and creating templatesInserting section breaks, columns, and linked text boxes Creating an index Creating a table of contents Creating a table of figures Creating an outline Creating a master document Creating a mail merge" | 2.75 | Intermediate |
| Math: Basics | This course is designed to familiarize participants with basic mathematical applications that can be used on the job. After completing this course, participants should be able to interpret measurements that include fractions and decimal values, measurements in English and metric units, and perform mathematical applications involving fractions and decimals. They should also be able to calculate dimensions associated with rectangles, triangles, and circles. | 2 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mechanical Seals | The purpose of this course is to provide participants with a general understanding of mechanical seals and mechanical seal installation. At the completion of this course, participants will be able to describe the components and operation of the different types of mechanical seals as well as procedures for seal removal and installation. | 1 | Intermediate |
| Meetings That Get Results | Frustrated with boring meetings that waste time? Never fear! This pivotal course will teach you how to shift from boring, ineffective meetings, to strategic meetings that get results! Through application exercises and a rich multimedia process, learn the specific components that make meetings worth the time and effort of everyone involved. But what if you are not in charge? Not a problem! This course will also take you through the steps and options to make meetings effective even when you are not the one conducting! | 0.5 | Intermediate |
| Microgrid Essentials | Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges. | 1 | Fundamental |
| Microgrids and the City | Is your municipality prepared for a loss of power for days, or even weeks? The use of backup generators is really a short-term solution that only addresses one aspect of loss of power - what about the rest? Wireless communications? Clean water? Gasoline/ diesel? Medicines? A holistic approach to energy from up front and ongoing efficiency, minimizing demand, and designing, building, and operating long-term outage solutions is within the grasp of all municipalities. This presentation will examine energy resiliency resources and provide two case-study examples of the application of those resources. | 1 | Intermediate |
| Microsoft 365 Admin Tips and Tricks | "Learn the secrets to keep your Microsoft 365 tenant safe and secure.<br>As an administrator, you know the importance of streamlining user, device, and configuration management, while ensuring a safe and secure experience for both your users and your company. In this course, Amy Babinchak, Microsoft 365 MVP, shows you how she administers and secures Microsoft 365 tenants for her company and her clients. Learn how to access the various Microsoft 365 admin centers and where to perform necessary tasks, while also getting tips and tricks from Amy based on her years of experience. By the end of this course, you'll be ready to get started with, or improve, your Microsoft 365 administration." | 2 | Fundamental |
| Microsoft Forms Essentials | "Learn How Microsoft Forms Makes It Easy to Collect Datavia Forms or Quizzes<br>Easily create online forms, surveys, and quizzes, and view the results as they come in with Microsoft Forms!<br>In this course well take a close look at all the features and benefits of this new Office 365 tool!" | 1.33 | Fundamental |
| Microsoft Lync Essentials | "Can You Hear Me Now? The Essential Guide To Communication & Collaboration With Microsoft Lync<br>Collaboration is the art of making 1 + 1 equal more than 2 - coworkers sharing ideas, working through challenges, and congratulating each other on successes is an important part of any successful business. How do you do that with today's distributed workforce? Microsoft Lync to the rescue!<br>This Course Will Teach You Everything You Need To Know To Chat, Call, Present, and Share With Microsoft Lync." | 1.25 | Fundamental |
| Microsoft Sway Essentials | Learn The Easy Way To Create Compelling, Modern Presentations With Microsoft Sway, For everyone who ever struggled to create an engaging presentation with PowerPoint, rejoice! Microsoft Sway is a unique and refreshing new way to create visually appealing, interactive presentations, and this course will walk you through getting started with your first Sway. | 1.25 | Fundamental |
| Microsoft Teams Essentials | "Learn To Collaborate and Communicate with Microsoft Teams<br>Many businesses are using Microsoft Teams to facilitate communication, collaboration, file sharing, and more. This mini-course covers everything you need to know in order to start using Microsoft Teams in just the first two modules (20 minutes)." | 1 | Fundamental |
| Microsoft To Do Essentials | "Organize Your Day Track Your To-Dos and Focus on Whats Important<br>The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks." | 0.5 | Fundamental |
| Modern React with Redux | This is the tutorial you've been looking for to master modern web development with React. Redux? We got it. ES6/Babel? Covered. Webpack? Included! Mastering React and Redux can get you a position in web development or help you build that personal project you've been dreaming of. It's a skill that will put you more in demand in the modern web development industry, especially with the release of Redux and ReactNative. This course will get you up and running quickly, and teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux. We'll start by mastering the fundamentals of React, including JSX, props', state', and eventing. Source code is provided for each lecture, so you will always stay up-to-date with the course pacing. After an introduction to React, we'll dive right into Redux, covering topics like reducers, actions, and the state tree. If you are new to React and Redux, or if you've been working to learn it but sometimes feel like you still don't quite 'get it', this is the React course for you! To learn React you have to understand it. Learn how to use React's custom markup language, JSX, to clean up your Javascript code. Master the process of breaking down a complex component into many smaller, interchangeable components. Grasp the difference between props' and state' and when to use each. Develop complex applications that scale in complexity by mastering Redux. Dive deeper into Redux by using middlewares. No fancy terms required! I've built the course that I would have wanted to take when I was learning React and Redux. A course that explains the concepts and how they're implemented in the best order for you to learn and deeply understand them. | 10.5 | Intermediate |
| Mold Basics | "Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure." | 1 | Fundamental |
| Mold Remediation | Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. | 1 | Fundamental |
| Mold Remediation Equipment | The key to efficiently and effectively completing remediation projects is knowing what equipment to use for the task, how to use it, and take care of it. This course will allow you to quickly learn from our practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list. | 1 | Fundamental |
| Mold Safety and Health | Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects. | 1 | Fundamental |
| Mold Sampling | This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. | 1 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Montana 4 Hour 2017 NEC Changes: Program 1 | This 4-hour program is formatted in 3 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) 2017 NEC Changes: General Requirements (RV-11105) 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Lesson 1: The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: The second lesson covers Chapter 1 of the 2017 National Electrical Code (NEC)and contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Lesson 3: In the last lesson chapter 2 is discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercia | 4 | Intermediate |
| Montana 4 Hour 2017 NEC Changes: Program 2 | This 4-hour program is presented in 4 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) 2017 NEC Changes: Enclosures and Boxes (RV-11108) 2017 NEC Changes: Hazardous Locations (RV-11112) 2017 NEC Changes: Special Occupancies (RV-11113) Lesson 1: The first lesson covers Article 240 and 250 of the National Electrical Code (NEC) and the requirements for overcurrent protection and for grounding and bonding. Changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: Chapter 3 of the NEC contains requirements for wiring methods, enclosures and boxes. Notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Lesson 3: Chapter 5 of the 2017 National Electrical Code (NEC) also contains requirements for special occupancies. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements <p style="margin-bottom: 0.0001pt | 4 | Intermediate |
| Montana Electrician 4 Hour Industry Related Program 1 | "This<br>4-hour program is presented in 2 lessons. Each lesson has a test which must be<br>passed with a minimum score of 70% and a survey which must be completed before<br>proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Wecome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'l" | 4 | Intermediate |
| More Than Mold - Health Effects Associated With Mold and Water Damage | "Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health." | 3 | Fundamental |
| Motivating Employees | How do you get your employees and team members motivated and actively engaged? According to the dictionary, you simply provide them with a need, desire, or reason to make a particular choice - or behave in a specific manner. Sounds simple, right? Unfortunately, motivating employees is much more than just offering the right prizes, bonuses, or incentives. To understand motivation, we'll first focus on making sure the foundational needs of your employees are being met, and then, look at what additional needs need to be taken care of to help them thrive. Finally, you'll learn how to assess the motivation level of your employees to better determine what types of programs, incentives, or changes should be put in place to effectively increase motivation within your organization. | 0.5 | Intermediate |
| Motivational Ethics | "**This course does not provide CEU or PDH credit** A lot of "good" people find themselves getting fired, or even getting arrested, and have to ask, "How did I end up here?"<br>You likely didn't wake up today and make a conscious decision to NOT steal a car or rob a bank. However, you already have made thousands of choices, and those choices will have an inevitable impact on your life, and the lives of others. This course shows how to recognize and understand HOW to be trustworthy, reliable, and honest in your professional and personal life.<br>What determines your future has everything to do with the choices you make. Understanding ethics can do more than help you decipher what is right or wrong. If you understand and apply the laws of ethics, then you can consciously make decisions that will inevitably lead you to become very successful." | 1.75 | Fundamental |
| Motor Branch Circuit Protection | A motor branch circuit, or motor branch, is a circuit that provides power and protection for a motor. According to the National Electrical Code® (NEC®), a motor branch must have a means to disconnect the entire branch from its power supply and a means to protect the branch components from the potentially damaging effects of excessive current. How a motor branch functions and how the necessary protection is provided are the subjects of this course. | 1 | Intermediate |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Multistage Centrifugal Pump Maintenance | Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A singlestage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered. | 1 | Intermediate |
| Multistage Centrifugal Pumps | A centrifugal pump converts external rotational mechanical energy into kinetic energy within a liquid. In the most common design of the centrifugal pump, a single impeller spins within a case called a volute. There is an economical limit to the pressure increase that can be achieved with a single impeller. Placing multiple impeller-and-volute stages in a case creates a single centrifugal pump unit capable of continuously delivering much higher discharge pressures than can be created by a single stage pump. This type of pump is called a multistage centrifugal pump. This course discusses some of the mechanical considerations and different designs of multistage centrifugal pumps. | 0.25 | Intermediate |
| Natural Gas Systems - Sizing and Design Consideration | "What is that yellow pipe for? Do you know how to size a natural gas system? Natural gas piping systems are in use in virtually every commercial building. Natural gas is used for comfort heating, cooking, laundry, water heaters, fireplaces, even decorative lighting and fire pits. The proper design and installation of natural gas systems is essential for not only the efficient operation of appliances but also the safety and health of building occupants. This interactive online course will take an in-depth look at a number of considerations that must be addressed before design can begin including:<br>Knowing the applicable codes,Knowing the requirements of the natural gas utility supplier,Venting requirements,Pipe identification and labeling requirements,Pipe support requirements,Gas meter clearances for windows, air intakes and electrical equipment, Sizing methods to use, andSelection of piping material." | 1 | Intermediate |
| New Employee Safety Orientation | All occupations, even ones that are not typically assigned to dangerous tasks, have certain safety hazards associated with them. For some occupations, the hazards are obvious. For other occupations, however, the hazards may be less apparent. It would be difficult to fully discuss all safety rules and regulations to avoid every danger you could potentially encounter in your job. So, instead, this online interactive course provides a basic overview of safety issues to help improve your safety awareness. These safety issues include safe work habits, which should be part of your daily routine; personal protective equipment, which may be required to maintain your health and safety on the job; hazard communication, which provides vital information about chemicals and other hazards that affect working conditions; and fire safety, which is a critical concern in any workplace. | 0.5 | Intermediate |
| NFPA 70E® - 2018 Updates | Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance. | 1 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements | This 2 hour program is presented in two lessons:Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 2 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies | This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. | 2 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: Overcurrent Protection, Grounding & Bonding, and Enclosure Boxes | This interactive online course is presented in two lessons:Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings | 2 | Intermediate |
| Occupational Safety Training: Introduction to OSHA | Many of the health and safety programs and procedures in this Health and Safety Guide are derived from federal Occupational Safety and Health Administration (OSHA) regulations. This course provides you with some background information about OSHA and OSHA standards, inspections, citations, and penalties. At the end of this course, you will be able to distinguish between the role of OSHA and the role of the office of Environmental Health and Safety (EHS). Learn more about the role of OSHA in establishing a safe and secure work environment. | 0.5 | Intermediate |
| Office 365 Groups Essentials | "Learn How Office 365s Powerful New Groups Feature Help Your Team Talk, Plan, And Collaborate<br>Microsoft Office has no shortage of ways for groups to work together. From simple spreadsheet sharing to social media tools like Yammer and Delve and collaboration platforms like SharePoint, Microsoft has provided plenty of tools to help people work as a team." | 1 | Fundamental |
| Office 365 Planner Essentials | Learn How to use Office 365 Planner to Organize Your Team in a Powerfully Simple Visual Format. The Planner tool in Office 365 is a powerful team management tool, providing features comparable to standalone project management apps but without the high price tag - in fact it's included free with most Office 365 Business plans. | 0.75 | Fundamental |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Ohm's Law | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that is commonly referred to as Ohm's Law. Ohm's Law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. This course describes Ohm's law; the units in which power is measured; and how to solve for power, voltage, current, and resistance using Ohm's Law. | 1 | Intermediate |
| Oklahoma 6 Hour 2017 NEC Changes Program | "This program is intended to familiarize the reader with the major changes contained in the 2017 NEC, and is suitable for electricians, and electrical engineers. The course addresses Code revisions that are listed in the lessons below. NOTE: This course is formatted in 5 lessons with the exam given at the end of each lesson. Each lesson must be passed with a score of 70% or higher before being allowed to proceed to the next lesson. The lessons are listed below. Lesson 1: 2017 NEC Changes A New Process and Five New Articles (RV-11104) The 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. Lesson 3: 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Lesson 4: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Lesson 5: 2017 NEC Changes: Enclosure Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314." | 6 | Intermediate |
| OneDrive Essentials (2016) | "OneDrive and OneDrive for Business Can Radically Improve Your Productivity Well Show You How! Both OneDrive (the free, personal version) and OneDrive for Business (the corporate version included in most Office 365 plans) have the same mission: To let you easily access your documents and files from any device, anytime, and securely share them with others." | 1.5 | Fundamental |
| OneNote for Windows 10 Essentials | "The Structure You Need with the Flexibility You Want. OneNote is one of Microsofts unsung heroes: a digital notebook that allows you to organize your notes, meeting minutes, project documents, and moreall in one place. Its almost like having an old-school, three-subject binderexcept with unlimited sections and your notebook wont weigh down your bag like it might have in school. Plus, no one will have to copy your notes, because you can share them digitally to collaborate with others.<br>Are you ready to get organized? Note: While many of the features are the same in other versions, this course is specific to the Windows 10 version of Microsoft OneNote." | 1.25 | Fundamental |
| Online Marketing 101 | "This Course Is A Must-Take For Anyone Who Wants To Drive In More Profits With From Your Online Business Generators You've heard of businesses making it big online, and others not making it at all and the difference is whether or not they can master online marketing techniques." | 1.5 | Fundamental |
| Operator Responsibilities: Plant Production and Safety | The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with. | 0.5 | Intermediate |
| Oregon 2017 NEC Changes: A New Process and 5 New Articles and General Requirements | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104)The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105)Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 2 | Intermediate |
| Oregon 2017 NEC Changes: Hazardous Locations and Special Occupancies | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112)Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113)The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. | 2 | Intermediate |
| Oregon 2017 NEC Changes:Overcurrent Protection, Grounding & Bonding, and Enclosure Boxes | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107)Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108)Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings | 2 | Intermediate |
| Oregon Electrician 2017 NEC Changes: Appliances and Equipment - Special Equipment | This two-part course discusses the 2017 NEC changes regarding appliances and equipment as well as special equipment. Part I 2017 NEC Changes: Appliances and Equipment Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II 2017 NEC Changes: Special Equipment Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. | 2 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Oregon Electrician 2017 NEC Changes: Conductors and Wiring Methods - Receptacles and Switches | This two-part course discusses the 2017 NEC changes regarding conductors and wiring methods as well as receptacles and switches.Part I 2017 NEC Changes: Conductors and Wiring Methods Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part II 2017 NEC Changes: Receptacles and Switches (RV-11110) How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. | 2 | Fundamental |
| OSHA 10 Hour Construction Program | "The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: Introduction to OSHA, Electrical Safety, Fall Protection, Struck-By & Caught-Between Accidents, Personal Protective Equipment (PPE), Scaffolds, Cranes, Hand & Power Tools, Excavations, Materials Storage, Demolition, Hazards in Construction" | 10 | Fundamental |
| Outlook 2013: 01-Getting Started in Outlook 2013 | Outlook is a program that enables you to track all your communication with contacts, meetings or appointments, notes, and to-do lists in one place. Microsoft has offered this resourceful program for years, but released this version update to provide users with a sleeker and more efficient tool. Explore whats new in Outlook 2013 as you go over the basics. You'll explore the interface, discover customization options for the layout of Outlook as well as customization options within your messages. Communication is key to success. Therefore, you'll spend a portion of your time learning to work efficiently within the Mail section of Outlook. Overall, the topics covered will aid you in your preparations for Microsofts Outlook Exam 77-423. | 1.5 | Intermediate |
| Outlook 2013: 02-Message and Contact Management in Outlook 2013 | Outlook is your go-to resource for all tasks and projects associated with communication. Part of communication is knowing the appropriate channel to reach a contact. As a result, you must understand how to use the People tab in Outlook for your benefit. Alongside the discussion on Contacts, you will also spend time on organizing your mail as you look over folder and configuration options. Prepare for your Microsoft Outlook Exam 77-423 by learning the tools Outlook provides for mail organization, the various save options, and contact categorization. Explore all of Outlook 2013s available features and tools for email and contact customizations. | 1.5 | Intermediate |
| Outlook 2013: 03-Time and Task Management in Outlook 2013 | Through these discussions, you are preparing for Microsofts Outlook Exam 77-423. To be successful in this exam, as well as in the professional world, it is crucial that you know how to properly manage your time. Overall, the topics covered will aid in learning how to use Outlook tools to help with time management. The tools emphasized are those associated with the calendar, notes, journal, and tasks tab. In the end, you'll be able to share calendars, work with the scheduling assistant, forward calendar items, share meeting notes, and update to-do lists. | 1.25 | Intermediate |
| Outlook Online Essentials (2018) | "Communicate Anywhere With Outlook Online, the Web-Based App For Managing Emails, Calendars, and People Sometimes you need a quick way to get to your "stuff" no matter where you are. Outlook Online, also called the Outlook Web App (OWA), is a convenient and powerful way to access your email, calendar, and contacts (People) from any web browser. Throughout this course, you will learn the main features and benefits of using Outlook Online from Office 365. The interface is very similar if you are using Outlook Online from your company as well." | 2.5 | Fundamental |
| Overcurrent Protection I - Short Circuit Calculations | This 3-hour interactive online course reviews the principles of electric systems during faulted conditions and how short circuit currents are calculated in both three-phase and single-phase systems. Since short circuits have such damaging impacts on an electric system, the magnitude of the expected faults currents and their impact on the components in the circuit must be understood. The simplified analytical procedures presented in this course will allow the user to quickly determine the expected level of fault currents in an electric system. These procedures are generally considered adequate for most applications of 600-volts or less.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Overcurrent Protection II - Coordination | "This 3-hour interactive online course reviews the principles of operation and coordination of electric system equipment during faulted conditions. Since short circuits have such damaging impacts on electrical equipment, their impact on the components in the circuit must be understood. The purpose of this course is to explain how the various protective devices react to faulted conditions and how to select the appropriate devices to ensure proper coordination. The theory of operation of protective devices is reviewed as well as how to properly coordinate the devices for selective coordination. Various electrical devices are reviewed including fuses, current limiting fuses, circuit breakers, transformers, conductors, busways, and motor controllers. This course reviews the principles of electrical equipment operation and coordination on an electric system during faulted conditions.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 3 | Advanced |
| Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in parallel are connected so the same voltage is applied to each component. In this course, participants will learn about the fundamentals of parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Password Security Basics | This course provides an overview of password security and management, including the basic principles of password security, the elements of a strong password, and strategies of how to create and maintain passwords. | 0.25 | Fundamental |
| Past, Present and Future of Building Energy Codes and DOE Appliance Mandates | National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continued to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates. | 2 | Intermediate |
| Personal Protective Equipment For Mold Remediation Contractors and Consultants | From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. | 1 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Personal Safety for Lab Technicians | This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Persuasion: The Art of Communication | All communication is persuasion! This course teaches you to communicate well and persuade effectively. There are many reasons why we communicate - to inform, to share our viewpoint, to educate, and to sell. Communications guru Barbara Evers would argue that all these forms of communication are in fact forms of persuasion. In this course Barbara Evers and Wofford Jones walk through tips and techniques to take advantage of when you need to communicate and persuade. | 1.25 | Fundamental |
| Pipes and Valves: Basic Pipefitting Skills | Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square. | 2 | Intermediate |
| Pipes and Valves: Calculating Offsets | Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets. | 2 | Intermediate |
| Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe | Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method. | 2 | Intermediate |
| Pipes and Valves: Installing Pipe Hangers and Supports | Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors. | 2 | Intermediate |
| Pipes and Valves: Installing Screw and Welded Pipe | Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping. | 2 | Intermediate |
| Pipes and Valves: Pipes and Pipe Fittings | This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe. | 2 | Intermediate |
| Pipes and Valves: Special Calculations | Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures. | 2 | Intermediate |
| Pipes and Valves: Valve Maintenance | This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it. | 2 | Intermediate |
| Pipes and Valves: Valve Types and Operation | This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated. | 2 | Intermediate |
| Piping and Auxiliaries: Basic Components and Functions | This course is designed to familiarize participants with some of the basic components commonly found in piping systems. After completing this course, participants should be able to state the purpose of piping and pipe fittings and describe some common types of pipe fittings. They should also be able to describe devices that are used to accommodate the weight and movement of piping, and they should be able to explain how insulation and heat tracing help to control temperatures in piping systems. | 2 | Intermediate |
| Piping and Auxiliaries: System Components and Operation | This course is designed to familiarize participants with some of the auxiliary components commonly found in piping systems. After completing this course, participants should be able to describe the function and operation of rupture discs, relief valves, safety valves, and some common types of steam traps. They should also be able to describe basic procedures for draining and filling liquid systems, and they should be able to describe some typical operator checks for fluid systems. | 2 | Intermediate |
| Plant Science: Fluid Systems | This course is designed to introduce participants to the characteristics, components, and operation of fluid systems. After completing this course, participants should be able to explain, in general terms, what a plant system is and what a fluid is. They should also be able to explain the basic layout of a liquid system and describe energy conversions in a liquid system. Participants should also be able to describe the basic parts of a compressed air system and the basic operation of several gas and vapor system devices. | 2 | Intermediate |
| Plant Science: Forces and Machines | This course is designed to introduce participants to scientific principles associated with applied forces and the operation of basic machines. After completing this course, participants should be able to define work, power, and efficiency; and explain the mechanical advantage of this inclined plane and the lever. They should also be able to explain the hydraulic principle and the relationship between friction and the operation of machines. | 2 | Intermediate |
| Plant Science: Gases and Flowing Liquids | This course is designed to familiarize participants with basic concepts associated with the properties of gases and flowing liquids. After completing this course, participants should be able to describe the major properties of gases and explain how these properties are related. They should also be able to explain how pressure can be measured and to describe the effects of flow, velocity, and friction on the head pressure of a liquid. | 2 | Intermediate |
| Plant Science: Heat | This interactive training is designed to introduce you to some of the basic principles associated with heat and heat transfer. In this course, we will describe some of the effects of heat, the relationship between temperature and thermal energy, and the Law of Energy Conservation. We will define the terms “sensible heat” and “latent heat.” Also, we will discuss the effects of pressure on the temperature at which a substance undergoes a phase change. | 0.5 | Intermediate |
| Plant Science: Solids and Liquids | This course is designed to familiarize participants with basic scientific principles that relate to solids and liquids. After completing this course, participants should be able to describe the general molecular structure of solids, liquids, and gases. They should also be able to describe specific properties associated with solids and liquids. | 2 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 01-Project Management Overview | Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations | In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups | Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling | In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure | Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan | A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope | One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope | A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities | Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule | Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration | One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 12-Controlling Costs | Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 13-Estimating & Budgeting Project Costs | Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 14-Project Quality Planning | Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control | A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources | The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources | As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications | Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 2 | Intermediate |
| PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan | One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks | In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis | All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.5 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 22-Risk Management Planning | Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control | Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project | This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bitter conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project | As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning | Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication | Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline | Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam. | 1 | Advanced |
| PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020 | "Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification." | 1 | Advanced |
| Pneumatics: Actuators and Positioners | Typically, pneumatic actuators and positioners are rugged and dependable. But like any other piece of equipment, their parts can wear out from the rigors of around-the-clock use and may need to be replaced or adjusted from time-to-time. In this interactive online course, we're going to look at several different actuators and positioners to see what their component parts are, how they work, and how to adjust them. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pneumatics: Basic Pneumatic Control Systems | "In your plant, there are process conditions that can vary or change, such as temperature, pressure, flow and level. Frequently, these process variables must be maintained at or near a desired value. Understanding how these systems operate will allow you to manage your system at desired operating conditions. This interactive online course will teach you about the elements normally found in a basic pneumatic control system. You will learn about control systems used to maintain temperature, pressure, flow and level. Additionally, you will learn about resources that provide information about pneumatic control systems." | 1 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems and Diagrams | "Pneumatic instruments play an important role in the overall operation of a plant. Knowing how to troubleshoot and fix problems with pneumatic instrument systems will allow you to get your plant quickly back into operation. This interactive online course will use an example of a level control system to teach you about pneumatic instrumentation, basic pneumatic instrument groups and their functions. You will also learn about commonly used plant system diagram symbols and how they are used in diagnosing and correcting problems in the instrument systems found in your plant. " | 1 | Intermediate |
| Pneumatics: Controllers | "In industrial process plants, it's critical for pneumatic controllers to work properly and to be adjusted correctly. Understanding how controllers operate will help you when you're repairing a controller or tuning a pneumatic control system. This interactive online course will teach you about several types of pneumatic controllers. You will learn how these controllers operate and how to make basic adjustments to the controllers. You will also learn the mechanisms in a controller and how their four basic functions operate." | 1 | Intermediate |
| Pneumatics: Indicators and Hand-Auto Control Stations | "Transmitters, recorders, signal converters, indicators, and hand-auto control stations are all important pieces of instrumentation and control equipment used in pneumatic systems. Understanding how these instruments function will allow you to maintain your system at desired operating conditions. This interactive online course will teach you about the relationship between the input and output of a transmitter and how a pneumatic transmitter develops an output pressure signal that accurately represents the value of a process variable. You will also learn how to perform calibration adjustments on a typical pneumatic transmitter. Additionally, you will learn the function and purpose of hand-auto control stations." | 1 | Intermediate |
| Pneumatics: Multi-Element Pneumatic Control Systems | "Multi-element pneumatic control system,s like all process control systems, operate primarily to maintain a process variable (such as level, temperature, flow, or pressure) at or near a predetermined value known as set point. This interactive online course focuses on several types of multi-element pneumatic control systems that are commonly used in industrial plants. The basic design and function of the control system are explained, and emphasis is also placed on how the instruments and componenets in the system work together to keep a process variable at or close to set point." | 1 | Intermediate |
| Pneumatics: Pneumatic Instrument Tubing | In any industry that uses pneumatic instrument systems to monitor and control plant processes or conditions, you'll discover miles of associated pipes and tubing routed throughout the plant. Without these intricate networks of piping and tubing, a plant couldn't operate. The important job of installing pipe and tubing for pneumatic control systems often belongs to you, the instrument technician. You'll be concerned specifically with installing pipe for instrument air supplies and tubing from one component to another in pneumatic systems that control process variables. Our goal in this interactive online course is to examine the basic skills and information you need to know to install piping and tubing for a pneumatic control system. To meet this goal, we'll observe a qualified technician as he puts a piping and tubing installation together. We'll take a close look at the materials and tools he uses and the technique he applies. However, before we start to do any actual work with pipe or tubing, we need to establish what pipe and tubing are, and we need to take a look at the major characteristics of each; their function, the important size factors for both, and the type of material they're made of. By doing this, we'll have a better understanding of how pipe and tubing are similar in some respects but different in others. | 1 | Intermediate |
| Pneumatics: Self Balancing Instruments | At first glance, most pneumatic control equipment seems like a maze of bellows, cams, beams, and other mechanisms packed into a small area. Sometimes the design makes it appear as if the instrument is hard to understand. However, many of these instruments are fairly easy to understand if you know what you're looking for. In this interactive online course, we'll look at a few types of force balance and motion balance instruments in greater detail. We'll see how they operate and where common adjustments are located. | 1 | Intermediate |
| Pneumatics: Transmitters | "Most pneumatic instruments have in common basic components and structures. And even though they may look different, their operation is often quite similar. In this interactive online course, we will cover the information needed to recognize the common components and structures of most pneumatic instruments and to understand how the common structures are related. We will cover types of pneumatic instruments, components, and mechanisms, self-balancing instruments, input mechanisms, error detector mechanisms, and output/balancing mechanisms." | 1 | Intermediate |
| Pneumatics: Troubleshooting Pneumatic Instrument Systems | "As an instrument technician you're going to find yourself doing a lot of troubleshooting. By using a logical procedure, you can face each problem confidently and solve the problem logically and efficiently. This interactive online course will teach you the principles of troubleshooting and how to apply them to troubleshooting pneumatic instrument systems. You will learn how to observe, diagnose, and restore pneumatic instrument systems following troubleshooting principles. Additionally, this course will walk you through a troubleshooting example to demonstrate how to diagnose and resolve a pneumatic instrument system issue." | 1 | Intermediate |
| Pneumatics: Tuning Pneumatic Control Systems | When you tune a control system, you check and adjustment the instruments in the system to ensure that it operates within specified limits. The procedure's a lot like tuning an automobile engine. No two engines are the same, but if you know the engine and you use a logical tuning method, you can probably do the job. Now, in a plant, no two process control systems are exactly the same, but with the right knowledge and resources, you can tune a variety of control systems. In this interactive online course course, we'll look at some of the basic principles of tuning a pneumatic control system. Then, we'll look at the process characteristics that are important in tuning, and we'll examine some common tuning methods. Afterwards, we'll see how an instrument technician tunes a control system. Most of the information that you'll learn from this course can be applied to the pneumatic control systems in your plant. | 1 | Intermediate |
| Positive Displacement Pump Maintenance Basics | The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures. | 1 | Intermediate |
| Positive Displacement Pumps | A positive displacement pump works by capturing a given volume of liquid at the suction of the pump, and then mechanically forcing it out of the discharge at a higher pressure. In contrast to centrifugal pumps, in which the flow is affected by downstream pressure, positive displacement pumps (within the limitations of the driver) deliver a nearly constant flow, independent of the downstream pressure. Positive displacement pumps can be categorized as reciprocating or rotary action pumps. This course describes the general characteristics of positive displacement pumps and the principles of operation of various common designs. | 0.5 | Intermediate |
| Power BI Essentials | Learn to create stunning reports with real-time data. In Microsoft's Power BI, you can connect to existing data to create modern data visualizations and reports. In this course, you will learn everything you need to know to design reports, charts, and dashboards and distribute them to your team. We will walk you through the process from install to publish. | 1 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Power Supplies | An electronic power supply is a device, or a group of devices, that converts normal generated alternating current (AC) power into power that is suitable for electronic equipment. An electronic power supply typically includes some or all of the following types of devices: transformers, rectifiers, filters, regulators, voltage multipliers, and voltage dividers. The components of a specific power supply are directly related to the requirements of the electronic equipment being served. | 1 | Intermediate |
| Power Up PowerPoint | "Giving A Presentation? If You Want To Avoid Boring Your Audience To Tears, This Course Is A Must<br>Most Presentations Are Filled With Bullet Point Lists, Thick Paragraphs Of Text, And The Occasional Picture In A Desperate Attempt To Break Up The Monotony ... but you can do better than that! This course shows you ways to turn standard content into something that's ACTUALLY INTERESTING to your audience.<br>Taught by presentation skills guru Kelly Vandiver and TEDx speaker Dr. Rebecca Heiss, Power Up PowerPoint will show you how to "power up" your next presentation!" | 2.75 | Intermediate |
| Powerful Presentations | Audiences decide if a presentation is worth paying attention to in the first 1-2 minutes. To be an effective presenter, there are multiple factors to consider and skills to develop. In this course, through the use of application exercises and a rich multi-media process, you will learn the key skills to creating powerful presentations that get results. | 0.5 | Intermediate |
| Preventing Mold Growth | Preventing fungal growth begins with the building design and follows all the way through responding to a water intrusion event. This course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. | 1 | Fundamental |
| Preventing The Spread Of Contagious Illness | This new program, which includes information about seasonal flu, avian flu, SARS and MRSA in addition to swine flu, explains the origins and symptoms of these illnesses as well as the general hygiene and prevention measures required to prevent spreading and contracting all contagious illnesses. The video stresses prevention and the personal responsibility required to avoid spreading an illness or infection.Topics covered also include: Decontaminating work areas, Special MRSA precautions, Responding to a potential infection, Medical diagnosis and treatment of contagious illnesses | 0.25 | Fundamental |
| Project Management Essentials | Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations. | 2 | Fundamental |
| Project Risk Management | "This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management.<br>There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 2 | Intermediate |
| Project Team Management | "This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization.<br>There is a test included at the end of this course.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Property Management Safety - Employee Slips and Falls | Property management company employees work in many types of varied environments. Inside, outside, rain, snow, and wet floors are just a few of the many slip hazards they face. This training program is designed to promote awareness of slips and falls from a property management perspective. It trains your employees on various potential hazards, the importance of proper maintenance and cleaning procedures, and many other aspects of slip and fall prevention. This DVD contains both English and Spanish versions. | 0.15 | Fundamental |
| Property Management Safety - Fire Prevention | Few things can be more terrifying and catastrophic than a fire, especially in a multi-unit property environment. That is why training and education is so important. This video program trains your employees on ways fires can be prevented, conditions that contribute to fires and the steps employees can take to minimize the risk of a potential fire in a unit. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Personal Protective Equipment | During their workday, property management maintenance personnel can face many different types of safety situations. As such, it is important that they be properly trained on what Personal Protective Equipment is required and how to use it. Personal Protective Equipment is often overlooked. Failure to utilize the correct PPE can have disastrous, life-changing results. This video emphasizes to your employees the importance of making sure they have and use the proper PPE in a multi-unit complex environment. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Resident Safety | In every property management environment, nothing is more important than the safety of your residents. There a many hazards that can exist when you have a large number of people living close to each other. Fire prevention, cleanliness and maintenance are just a few of the subjects covered in this production training program. This video highlights trains your employees on the key issues relating to safety in regards to new residents. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Resident Slips and Falls | When a resident in a multi-unit property injures themselves through a slip or fall, the potential liability exposure to management is great. All property management employees must be aware of this and what their responsibilities are to keep slip and fall hazards to a minimum. With a focus on exterior and weather related hazards, this training program is designed to train your employees on what types of hazards to look for and how they should be corrected. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection | "As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological, and explosive (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters." | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
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| Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters | The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks. | 1 | Fundamental |
| Protecting People Against Terrorist Attacks: Structural Design Criteria | "There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events." | 2 | Intermediate |
| Protecting Water Systems Through Backflow Prevention | "Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system. Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance." | 1 | Intermediate |
| Protecting Your Team Against Workplace Violence | Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents. | 1 | Fundamental |
| Protection Against Malware | Malware is a primary means of attack for cyber-perpetrators. This course provides staff members with an overview of basic protection against malware. Topics include: the types of malware, how malware works and protective strategies | 0.25 | Fundamental |
| Providing Performance Feedback: 01-The Power of Performance Feedback | Discover when to give performance feedback to team members and what sources to use for information. | 1 | Intermediate |
| Providing Performance Feedback: 02-Providing Verbal Performance Feedback | Practice providing verbal performance feedback to team members using key concepts in the course. | 1 | Intermediate |
| Providing Performance Feedback: 03-Providing Written Performance Feedback | Learn how to provide effective feedback in writing to empower team members. | 1 | Intermediate |
| Providing Performance Feedback: 04-Your Path to Providing Performance Feedback | Learn and apply the five-step process for providing timely performance feedback to a team member. | 1 | Intermediate |
| Providing Performance Feedback: 05-Mastering Providing Performance Feedback | Practice Providing Performance Feedback in a full scenario situation. | 1 | Intermediate |
| Providing Performance Feedback: 06-Providing Performance Feedback Health Check | Test your ability to apply Providing Performance Feedback concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Pumping Stations - Pumps, Motors and Electrical Systems | "Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations." | 2 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pumps Introduction | "Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Understanding the basics of fluid mechanics and the operation of different types of pumps is an essential step toward being able to understand, troubleshoot and improve a wide variety of processes.<br>This course includes a brief overview of fluid mechanics as well as the differences between centrifugal and positive displacement pumps, including their operational characteristics and applications." | 0.25 | Intermediate |
| Pumps: Fundamentals of Centrifugal Types | This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system. | 2 | Intermediate |
| Pumps: Multistage Centrifugal | This course is designed to familiarize participants with the basic operation, disassembly, and reassembly of a typical multistage centrifugal pump. After completing this course, participants should be able to describe the components and operation of a multistage centrifugal pump and explain how this kind of pump can be disassembled and reassembled when necessary. | 2 | Intermediate |
| Pumps: Operation of Centrifugal Types | This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump. | 2 | Intermediate |
| Pumps: Performance and Inspection | This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations. | 2 | Intermediate |
| Pumps: Reciprocating Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Pumps: Rotary Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Raceways | This course is designed to familiarize participants with various types of raceways used to house electrical wiring. After completing this course, participants should be able to describe various types of raceways, including conduit, wireways, and cable trays. They should also be able to describe procedures for installing raceways in various types of environments. | 2 | Intermediate |
| Reading Electrical Diagrams, Part 1 | Electrical diagrams are drawings in which lines, symbols, and letter and number combinations are used to represent electrical circuits. In some plants, electrical diagrams may also be called prints, or blueprints. No matter what they are called, however, these drawings are valuable tools for anyone involved in making new electrical installations, locating electrical problems, or modifying existing circuits. There are many different types of electrical diagrams. Each type is drawn differently to provide different information. The four types of electrical diagrams covered in this course are block diagrams, single-line diagrams, schematic diagrams, and wiring diagrams. | 1 | Intermediate |
| Reading Electrical Diagrams, Part 2 | A great deal of electrical maintenance work depends on the ability of maintenance electricians to read and understand electrical diagrams. This course focuses on connection diagrams, interconnection diagrams, raceway diagrams, and logic diagrams. | 1 | Intermediate |
| Reciprocating Compressors, Part 1 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Reciprocating Compressors, Part 2 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Refrigeration - Compressors, Valves and Piping | The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Properties | Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Selection | Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems. | 0.25 | Intermediate |
| Refrigeration - System Components | There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes. | 0.25 | Intermediate |
| Refrigeration - System Troubleshooting | Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance. | 0.25 | Intermediate |
| Refrigeration - Vapor-Compression Cycle | The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage. | 0.25 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Rehabilitation of Water Distribution Systems: Current Technologies | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the most current technologies to rehabilitate water distribution systems. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to identify technologies that are used to repair, rehabilitate and replace aging water distribution systems. | 1 | Advanced |
| Rehabilitation of Water Distribution Systems: Designing Renewal Projects | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through some of the key technical guidelines and standards for designing rehabilitation projects within the US. Some of these guidelines include AWWA, ANSI, ASTM and ASME standards. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to determine applicable design and QA/QC guidelines for common water distribution rehabilitation methods. | 1 | Advanced |
| Rehabilitation of Water Distribution Systems: Selecting Rehab Methods | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the overall items that need to be considered when selecting a method to rehabilitate a water distribution system. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to select applicable technologies to be used to repair, rehabilitate and replace aging water distribution systems. | 1 | Advanced |
| Reliability Engineering Essentials | This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world. | 1 | Intermediate |
| Reliability Essentials for Operators and Technicians | This course is intended to present the essentials of Reliability. Operators and technicians will be able to apply basic concepts related to reliability to work on system improvement, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but simple probability solutions, as they are found in the real world. | 0.75 | Intermediate |
| Resistors | This course introduces participants to the function and atomic makeup of resistors, common materials used to construct resistors, and the typical styles used in everyday applications. In addition, participants will learn about three ways to rate resistors as well as the different ways to mark resistors. | 1 | Intermediate |
| Resolving Conflicts: 01 - Characterizing Conflict | Discover the four stages of conflict and the impact that unresolved conflict can have on an organization. | 0.25 | Intermediate |
| Resolving Conflicts: 02-Know Your Conflict Behavior | Establish a collaborative conflict resolution process to encourage team member collaboration in conflict situations. | 1 | Intermediate |
| Resolving Conflicts: 03-Identifying Conflict Behaviors | Identify the conflict behavior exhibited in order to properly handle the conflict. | 1 | Intermediate |
| Resolving Conflicts: 04-Your Path to Resolving Conflicts | Learn and apply the five-step process for resolving a conflict between two or more team members. | 1 | Intermediate |
| Resolving Conflicts: 05-Mastering Resolving Conflicts | Practice Resolving Conflicts in a full scenario situation. | 1 | Intermediate |
| Resolving Conflicts: 06-Resolving Conflicts Health Check | Test your ability to apply Resolving Conflicts concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Rigging, Part 1 | The purpose of this course is to teach the fundamentals of overhead rigging. The topics covered include three basic elements of safe rigging, rope, knots and knot tying, use of a handline, and use of block and tackle. The course also introduces approaches to performing some basic rigging tasks. At the conclusion of this course, participants should have a basic understanding of how to plan a rigging job, how to inspect the equipment used on a job, how to tie basic knots commonly used in rigging, how to hang and use a handline, and how to hang and use a block and tackle. Participants should also be able to calculate the mechanical advantage of a block and tackle and identify the basic parts of a rope.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging, Part 2 | The purpose of this course is to teach rigging skills required for tasks often performed in line work. The course demonstrates how to rig to lift a conductor and how to rig to take the strain from a conductor at a dead end. Rigging to lift and move a piece of equipment and the use of a gin pole are also demonstrated. Safety is emphasized throughout the course. At the conclusion of this course, participants should have a basic understanding of how to rig to lift a conductor, how to rig to take strain at a dead end, how to lift and move a load, and how to use a gin pole. They should understand how to maintain safe working clearances around energized lines and how to avoid overloading rigging equipment.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging: Basic Lifting | This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability. | 2 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Rigging: Ladders and Scaffolds | This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds. | 2 | Intermediate |
| Rolling Contact Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Rolling Contact Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Rules for Discussing Politics at Work | It's natural to chat with colleagues at work and there's not necessarily anything wrong with a little back-and-forth about political issues. However, those conversations have the potential to go wrong pretty quickly if everyone does not stick to some basic standards. This lesson provides five rules to help keep things civil when having political discussions. These rules can help your team keep from creating an uncomfortable atmosphere when the topic of politics comes up. | 0.2 | Intermediate |
| Safe Backing of Tractor Trailer Rigs | Backing a single trailer or a set of doubles with a semi tractor is the most dangerous, intricate and time-consuming set of maneuvers a big rig driver has to master. No matter how many miles you drive forward, not one of those miles will help when it comes to backing. This program trains drivers on the mechanics and techniques required in backing large vehicles such as tractor trailers, and discusses using the _cone of visibility_ to insure safe backing. | 0.25 | Fundamental |
| Safe Food Handling | According to the CDC, every year in the US, 48 million people are infected with a food borne illness, 128,000 are hospitalized and 3,000 people die. Nobody wants this to happen; and, with proper training in safe food handling, it doesn't have to. Food borne illnesses can be prevented by insuring your employees are properly trained on basic food safety procedures. This program is targeted at everyone involved in the preparation, handling or service of food and outlines what these basic procedures are. It can assist employers on documenting employee training if required by their local health agency. Topics covered also include: Food-borne illnesses, Time and temperature control, Personal hygiene, Preventing contamination, Cleaning and sanitizing equipment and utensils, Preventing cross contamination, Housekeeping and maintenance. | 0.25 | Fundamental |
| Safe Work Permits | This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc. | 1 | Intermediate |
| Safety Management | Managing safety is not just something that happens - it should be managed just as quality, productivity and customer-relations are managed. Senior management establishes the overall culture at every facility. This course will review the four major elements to achieve a world class safety and health program at your facility. | 1 | Intermediate |
| Safety Valves | "Safety valves are commonly used in gas and steam systems to relieve excess pressure before it can cause injuries or equipment damage. Safety valves open quickly to release large volumes of gas or steam. This course is divided into two sections. Section 1: Types of Safety Valves, covers the concept of pressure and how it is measured and explores methods of relieving excess pressure through use of a rupture disc systems, relief valve systems, and safety valves. Section 2: Safety Valve Maintenance describes troubleshooting and basic maintenance procedures for a typical safety valve. The section consists of three parts: External Inspection, Disassembly and Inspection, Reassembly and Testing" | 1 | Intermediate |
| Safety: Electrical Part 1 - Fundamentals, Materials & Equipment Grounding | "Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards, Using proper materials and components, Equipment grounding" | 2 | Intermediate |
| Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) | "This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at:<br>Hazardous locations, Safe working clearances, Safety practices" | 2 | Intermediate |
| Safety: Working with Chemicals | This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Intermediate |
| Sales 101: Appointment Making | "The first step in being a successful salesperson is to have someone to sell to. In this course, professional Sales Trainer Marisa Pensa walks you through the basics of getting sales appointments, including:<br>What to say (on the phone or in person) What to NOT say (on the phone or in person) How to make effective phone calls Knowing your numbers" | 1.25 | Fundamental |
| Salesforce Essentials | "Everything you need to know to start using Salesforce today. If your company has started using Salesforce.com and you need to get up to speed, this course is for you. In this course, Certified Salesforce Administrator, Mia Huffman, walks you step-by-step through using Salesforce for the first time. By the end of this course, you will be able to start using Salesforce to manage leads, accounts, contacts, and opportunities and track your sales activity against these objects." | 1.25 | Fundamental |
| Saving Time in Outlook | "From timewaster to productivity booster: change the way you use Microsoft Outlook. Outlook is packed with great tools but there a few that can make a tremendous difference in your efficiency. With the automating features, tasks that you do on a regular basis that can take time will become simpler and faster. Topics covered include:<br>Using Quick Steps Creating reusable text, searches, and rules to automate things you do often.Using color, rules, and the task list to highlight and make email easier to manage and organize This course is the first step in Mastering Outlook. You will be sure to want to find out more about how Outlook can help you find more hours in your week!" | 0.5 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Seals: Gaskets and Packing | The purpose of this course is to examine some ways that leaks in fluid systems are controlled by the use of gaskets, packing, and mechanical seals. At the completion of this course, participants will be able to describe the components and procedures involved in working with gaskets, packing, and mechanical seals. | 1 | Intermediate |
| Security Begins At The Front Desk | Hotel Security requires the participation and cooperation of everyone on Staff, not limited to Security Personnel. Front Desk personnel are a pivotal part of the Security of your property. Front Desk personnel are often the first line of defense and have perhaps the most visible role in spotting and preventing potential threats, and reporting suspicious activity. The Security of any property is at higher risk without a vigilant Front Desk Staff. This program trains your Front Desk Associates, Bell Staff or anyone working in, around or near your properties lobby. Topics covered also include: Protecting Guest Privacy, Human Trafficking, Emergency Response, Key Control | 0.1 | Fundamental |
| Selection, Specification and Installation of Safety and Security Barriers and Bollards | "The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance." | 1 | Intermediate |
| Series Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. In this course, you will learn about the fundamentals of series circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Series-Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. Components connected in parallel are connected so the same voltage is applied to each component. In this course, you will learn about the fundamentals of series and parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Set-Up of Engineering Controls for Mold Remediation Projects | This course will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. | 1 | Fundamental |
| Shaft Alignment, Part 1 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will the cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment, Part 2 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment: Reverse Dial and Laser | This course is designed to familiarize participants with equipment and procedures for aligning shafts using the reverse dial method and using a laser system. After completing this course, participants should be able to prepare and set up equipment for a reverse dial alignment and for laser-based alignment. They should also be able to measure shaft misalignment and determine how the misalignment should be corrected. Finally, participants should be able to correct shaft misalignment so that the alignment is within specified tolerances. | 2 | Intermediate |
| Shaft Alignment: Rim and Face | This course is designed to familiarize participants with the basic principles associated with measuring and correcting shaft misalignment using the rim and face method. After completing this course, participants should be able to describe the basic types of misalignment, describe general preparations for a rim and face shaft alignment procedure, and explain how to use the rim and face shaft alignment procedure. They should also be able to explain how to use the rim and face method to measure and correct misalignment on horizontally mounted equipment and on vertically mounted equipment. | 2 | Intermediate |
| SharePoint for Site Owners | "Learn to Create and Manage Your Teams SharePoint Site in Less than 90 Minutes<br>Now more than ever, SharePoint is a powerful and user-friendly tool for creating a common place where your team can share documents, collect data, and collaborate. In this course, you'll quickly learn how to create your own site and invite your team members. SharePoint expert, Kat Snizaski, walks you step-by-step through creating a parent site and adding subsites for multiple teams. You'll learn how to create and manage document libraries and custom lists that enable collaboration. You'll also learn how to assign user permissions and get your team rolling on their new collaboration platform!" | 1.5 | Fundamental |
| Sharepoint Online Essentials | "Share Files and Post Information For Your Team with SharePoint Online<br>SharePoint is the behind-the-scenes backbone of Office 365, but the SharePoint Online app has its own benefits. In this course, IT guru Chip Reaves demonstrates how to use SharePoint Online to create shared resources, including a shared document library, and to create internal websites to share information with your team." | 0.75 | Fundamental |
| Shop Safety | The shop. A lot of different things go on in here. What DOESN'T go on in here? It's a busy place with a variety of functions, tools, personnel and responsibilities. Perhaps the most important responsibility is safety....your safety and the safety of those working around you.Topics covered also include:Fire PreventionElectrical SafetyCompressed GasRespiratory HazardsSafe LiftingChemicalsSlips and Falls and Injury Reporting | 0.1 | Fundamental |
| Single-Phase AC Induction Motor Maintenance | Most single-phase alternating current (AC) motors are small-horsepower motors designed to operate on standard single-phase AC current. They are found in a number of home and industrial tools, including vacuum cleaners, can openers, power saws, drills, and fans. Electrical maintenance personnel are responsible for keeping the single-phase motors in their plant in top operating condition and for repairing them correctly and quickly if the need arises. This course explains how single-phase AC induction motors operate and how they are classified. It also covers some common procedures for testing and maintaining them. | 1 | Intermediate |
| Site Utility Design: Commercial Buildings | This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Skype for Business Essentials | Chat, Call, And Videoconference With Ease Using Microsoft's Business Communication App! Skype for Business is an incredibly powerful communications tool, used for everything from simple chat conversations to webinars for 10,000 people, and can even replace a business's phone system. | 0.3 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Sliding Surface Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Sliding Surface Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Smart Business Writing: 4 Stages to Writing Your Best | "Some people thinks that in the grand sceheme of things, excellence in writing isn't all that important as long as you get the General idea accross. But the sentence above is a perfect illustration of why that simply isn't true: Did it make you wary to see that the first sentence of a course intended to teach you writing tips was full of errors? Good writing gives you and your ideas authority, visibility, and stature. Bad writing, on the other hand, can make readers question your credibility and/or expertise, can be costly to a business, and can even damage the career of the writer. Inefficient, unclear, misleading, irrelevant, sloppy or deceptive written communication costs companies across the board billions each year. This course will help you improve your skills and avoid careless errors by focusing on four stages of writing: preparing, planning, drafting, and editing (revising and finalizing)." | 1 | Intermediate |
| Smart Business Writing: Emails & Technical Proposals (RV-PGM139) | "This interactive online course is presented in two modules: How to Write Powerful & Persuasive Emails, Tackling the Technical Proposal. This course covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. The second lesson discusses writing business and technical proposals and focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read." | 1 | Intermediate |
| Smart Business Writing: Short, Sweet and To-the-Point Reports | If the skills you'd acquired by the time you wrote your last book report for school aren't cutting it for you in the business world, this course can teach you what you need to know. Almost every professional has to write a short report at some point in his or her career, and despite the fact that it doesn't have to be "long," it can still be daunting - especially if you don't like writing. This interactive online course will teach you to use the simple and extremely effective Pyramid method of writing to create the most common types of reports professionals will be faced with in their careers. | 1 | Intermediate |
| Smart Business Writing: Tackling the Technical Proposal | "Proposals are an integral part of the professional world. Proposal topics can range from a request for more department funding to a plan for redesigning a highway. Regardless of the subject, proposals are intended to persuade. A poorly written or dull document that doesn't present the critical components in logical order can mean your presentation or request is brushed aside or not taken seriously. This 1/2-hour interactive online course on writing business and technical proposals focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. Once you have successfully completed this SmartTeam course, you will have the tools to significantly improve your proposal writing skills and help ensure the success of your company." | 0.5 | Intermediate |
| Smart Business Writing: Writing Effective Emails | "In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language." | 0.5 | Intermediate |
| Smart Customer Service 1: Courtesies, Attitude, and Ethics | You are the face of your business; therefore, your company depends on you to present yourself well at all times. This interactive online course is designed to help you understand how to do that. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. | 0.5 | Intermediate |
| Smart Customer Service 2: Listening for Understanding | As a frontline employee you are the primary source of communication between your company and its customers. You can improve your ability to interact well by developing listening skills. When you hear and interpret a message correctly, you will be able to understand your customers' requests and that is the key to handling each and every customer successfully. This interactive online course is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone. | 0.5 | Intermediate |
| Smart Customer Service 3: Effective Verbal and Nonverbal Communication | Communication is the give and take exchange of information; therefore, effective verbal and nonverbal skills are crucial to understanding your customers completely. In the previous course in this series, you learned about listening for understanding, or the taking of information. In this course you will learn how to give information effectively by speaking well and using your nonverbal signals to enhance your message. This interactive online course is designed to help you improve your communication skills when you are the sender of the message, whether you handle customers face-to-face or by telephone. | 1 | Intermediate |
| Smart Customer Service 4: 3 Steps to Successful Customer Interaction | In this lesson you will learn how to combine the basics of customer service that will help you interact well with your customers: how to present yourself well, listen for understanding, and communicate effectively to complete your customer interactions successfully. Every customer interaction involves three important steps that need to be completed in order to satisfy customers. This interactive online course is designed to help you to fully understand these three steps so that you will complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options. | 0.5 | Intermediate |
| Smart Customer Service 5: Handling Customer Complaints | This interactive online course is designed to help you understand why customers may complain, uncovers the special skills needed for handling customer complaints, and teaches an easy to learn step-by-step method for handling these types of customer contacts. At the end of this course you will apply the skills to your work environment to successfully handle any customer in any situation. | 1 | Intermediate |
| Smart Customer Service: Courtesies, Attitude, Ethics and Listening for Understanding | This two part course discusses Smart Customer Service. Part One is designed to help you understand how to present yourself well at all times. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. Part Two is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone. | 1 | Fundamental |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Customer Service: Courtesies, Listening for Understanding for Successful Customer Interaction (RV-PGM140) | This interactive online course is presented in three modules: Courtesies, Attitude, and Ethics Listening for Understanding 3 Steps to Successful Customer InteractionYou will learn how to combine the basics of customer service, how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. It will also help you improve your listening skills, and teach you to complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options. | 1 | Intermediate |
| SMART Instrumentation in Biological and Chemical Treatment | What is SMART instrumentation? The definition and implementation of "SMART Instrumentation" has evolved over the past five or six decades to its present state where we can literally and figuratively put cruise control on a bicycle; however, it does not ride itself. Proper implementation of a monitoring and control scheme for even a very small system can generate terabytes of useful information per year, all of it meaningless unless correlated, analyzed, trended, structured, and most importantly, acted upon. In this interactive online course, we will discuss the quality and performance specifics, operational reliability, environmental safeguards, and safety risks for control and monitoring systems using SMART instrumentation. We will also cover the reduced costs that can be obtained using SMART instrumentation. | 1 | Intermediate |
| Smart Leadership: Part 1 - What Leaders Do | "Extraordinary results can occur in an otherwise ordinary setting, and the objective of this course is to help you to create the conditions that lead to those results. Leadership development is ultimately self-development, and this series of SmartTeam courses will help you meet that daily challenge. Leadership is not the private reserve of a few charismatic men and women - it is a process that ordinary people use when they are bringing forth the best from themselves and others. This series will inspire you to create a workplace that rejoices in celebration and encourages the best efforts from everyone. This interactive online course introduces the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage for the remaining courses in the series and uses actual case examples from real people who have achieved remarkable success. You'll also find out what four qualities - from among 225 traits - people consistently look for in a leader they would willingly follow. This course series is adapted from the extensively researched and highly respected book, The Leadership Challenge, by James Kouzes and Barry Posner. It is recommended that you take this course before attempting later courses in the series." | 1.5 | Intermediate |
| Smart Leadership: Part 2 - Model the Way | "What do Abraham Lincoln, Martin Luther King Jr., Susan B. Anthony, César Chávez, the Dalai Lama, Eleanor Roosevelt, Mother Teresa, and Archbishop Desmond Tutu have in common? They all have, or had, strong beliefs about matters of principle and an unwavering commitment to a clear set of values. They all are, or were, passionate about their causes. Another thing they have in common is that while each of these people may have quoted someone else from time to time, they are all people who are more often quoted themselves.<br><br>Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you. And people most admire those who best articulate the principles they believe in. You can begin to achieve these aims by exploring the first of the five practices of exemplary leadership: "Model the Way." This is the second in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |
| Smart Leadership: Part 3 - Inspire a Shared Vision | "When the byproducts of a Ben & Jerry's ice cream plant overloaded a local waste treatment plant and nearly had to shut down, administrative assistant Gail Mayville found an unorthodox solution that saved people's jobs, kept the plant open, and jump-started a new and rewarding career. What Gail and thousands of other leaders share is the characteristic of being forward-looking - of being concerned not just about today's problems but also about tomorrow's possibilities. They see something out ahead, vague as it might appear from a distance, and they imagine that extraordinary feats are possible and that the ordinary could be transformed into something noble. Find out how Gail solved the problem - and why leaders need to be able to look beyond the present moment to see an ideal version of the future. This SmartTeam course - which focuses on the third principle, "Inspire a Shared Vision," will help you learn to communicate your vision clearly and enlist others in making this dream a reality. This is the third in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |
| Smart Leadership: Part 4 - Challenge the Process | ""If you keep your eyes open and periodically actually shut your mouth, and you have the courage to turn the mirror around on yourself, it's amazing what you can learn and how you can change things." - Dick Nettell, corporate services executive for the Bank of America. The leaders whose stories we excerpt talk about times when they turned around losing operations, started up new plants, developed new products or services, installed untested procedures, renewed operations threatened with closing, or released the creative spirit trapped inside stifling bureaucratic systems. The personal-best leadership cases were about radical departures from the past, about doing things that had never been done before, about going to places not yet discovered. In many cases, the magnitude of results was in the hundreds of percent. In this SmartTeam course, "Challenge the Process," you'll see how leaders understand that change is a constant, and proactive individuals seize the moment and use times of change to create something better than previously thought possible. This is the fourth in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 2 | Intermediate |
| Smart Leadership: Part 5 - Enable Others to Act | "In the thousands of cases the course authors studied, they did not encounter a single example of extraordinary achievement that occurred without the active involvement and support of many people. Nor was there a single instance in which one talented person - leader or individual contributor - accounted for most, let alone 100 percent, of the success. Throughout the years, leaders from all professions, from all economic sectors, and from around the globe continue to say, "You can't do it alone." Leadership is not a solo act, it's a team effort.<br><br>This part of the series will teach you about the importance of fostering collaboration (and the methods for doing so), along with ways to empower and strengthen your team. This is the fifth in a series of SmartTeam courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 2 | Intermediate |
| Smart Leadership: Part 6 - Encourage the Heart | "Most people rate "having a caring boss" even higher than they value money or fringe benefits. In fact, how long employees stay at a company and how productive they are there is determined by the relationship they have with their immediate supervisor. This segment in the Leadership Challenge Series covers the last - but in no way least important - practice of exemplary leadership, "Encourage the Heart." You'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. Exemplary leaders keep four essential points at the fore: focus on clear standards, expect the best, pay attention, and personalize recognition. Learn how to put these points into practice to stimulate and motivate each individual on your team! This is the sixth and last in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
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| Smart Management: Methods for Motivating and Mentoring Your Team | Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company. | 2 | Intermediate |
| Smart Management: Business Essentials | "You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo.<br><br>This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service.<br><br>The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind." | 2 | Intermediate |
| Smart Management: Coaching for Better Performance | There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as "The Boss" and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a "coach." Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan. | 1 | Intermediate |
| Smart Management: Data Security | Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information. | 1 | Intermediate |
| Smart Management: Discrimination in the Workplace for Managers | As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination. | 1 | Intermediate |
| Smart Management: Effective Performance Review Practices | Studies show that well over 90% of organizations engage in a formal employee Performance Review (or Appraisal) Process, but the practice is highly varied between companies - and sometimes within a single company - in both the way it is conducted and its effectiveness. In fact, Performance Review is often dreaded by both managers and employees. One reason is that managers often lack skill in objectively evaluating and providing useful feedback to employees. The purpose of this interactive online course is to equip managers to engage in effective employee performance reviews that will help employees understand and maximize their performance. We will also show how employees can best participate in the process. When done effectively, the Performance Review will have a positive impact on the motivation and performance of employees and their managers and will benefit the entire company. | 2 | Intermediate |
| Smart Management: Equal Employment Opportunity and Diversity for Managers | As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce. | 1 | Intermediate |
| Smart Management: Getting the Most out of a Multigenerational Workforce | Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them "tick".This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just "well" but "with excellence". | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Customer Service | Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position. | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Sales | "Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position." | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Management: How to Handle Workplace Challenges | "Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges.<br><br>Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter.<br><br>**This course is intended for managers in policy-making roles." | 1 | Intermediate |
| Smart Management: Key Skills for Managing & Coaching Your Team | Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, "Take Care of Yourself." | 0.5 | Intermediate |
| Smart Management: Lawful Hiring Practices | The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts. | 1 | Intermediate |
| Smart Management: Lawful Termination Practices | "There comes a time for every manager when they are faced with the need to terminate an employee. The difficulty comes with ensuring that the company is in a position that prevents any liability on their part for that termination. Unfortunately in today's legal climate, wrongful termination suits are the number one labor lawsuit brought before the courts. The judicial system sees many of these cases, especially when economies experience a downturn and employees struggle to keep their jobs.<br><br>This interactive online course outlines the criteria for legal termination, and explains how to ensure your company is prepared. Proper procedures need to be in place, and managers need to be knowledgeable of employment laws and the consequences for wrongful termination." | 0.5 | Intermediate |
| Smart Management: Managing a Geographically Distributed Workforce | "It is becoming increasingly rare in today's business climate for all team members to be located centrally or working from a single office. Whether it is satellite offices, team members working at home, or offsite third party vendors, the workforce of today is more than likely dispersed among a variety of offices in separate locations. In this interactive online course, we will examine the factors that necessitate a remote and often globally distributed workforce. We will also discuss best practices for managing offsite teams and pitfalls to avoid in the process." | 0.5 | Intermediate |
| Smart Management: SMART Goals - Setting Effective Targets for Success | Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success. | 1 | Intermediate |
| Smart Management: Successfully Transitioning from Team Member to Manager | "Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader.<br><br>During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed." | 1 | Intermediate |
| Smart Management: The Art & Science of Delegation | "Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tell us when others can do needed activities, faster, cheaper, and better than we can ourselves.<br><br>The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects." | 1 | Intermediate |
| Smart Quality: Building Quality Awareness | "You expect quality from your vendors and your customers expect quality from you and your organization. In this SmartTeam course we will familiarize you, regardless of your level in your organization, with the meaning of quality, how it is critical, and how to begin to put it into motion in all of your work." | 1 | Fundamental |
| Smart Quality: Process Improvement | All work is a process—plain and simple. A process is a series of events, activities, decisions, or tasks that transform inputs into outputs. Processes can be very large, crossing many functions within your institution or organization; or small, existing within a department or unit. Smaller processes exist within the context of larger processes. It is imperative as you start that you are careful in what processes you select for improvement. This interactive online course discusses selecting, monitoring, and improving processes so you will be able to provide your products or services accurately and on time. | 0.5 | Fundamental |
| Smart Quality: Systematic Problem Solving | All organizations are challenged by problems that need to be fixed. You can become a master troubleshooter and problem solver. In this interactive online course we will instruct you in successful systematic problem solving, giving you methods and tools that you can use regardless of your position or organization. | 0.5 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Time Management: 7 Steps to Regaining Control of Your Day | Feeling out of control and overwhelmed by everything you need to accomplish each day? No matter how hectic your schedule appears, you can regain control of your day and increase your daily productive time. How? Effective time management is your tool to design success at work and at home. This interactive online course details a complete, integrated time management system. This system contains just seven steps, which will assist you in developing an effective and efficient method for allocating time and regaining control of your life. In addition to honing your prioritization skills, you will also learn how best to use your reclaimed time and how to periodically reassess your time management process so you can maintain control of your day. | 1 | Fundamental |
| Smart Workplaces: Designing Safe Workspaces & Preventing Injury | Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more. | 1 | Fundamental |
| Smart Workplaces: Putting Your People First - Personnel Administration | "The most important resource available to any organization is people. Organizations are made of people, and an organization cannot fulfill its intended mission without good employees. These employees need effective leadership to accomplish organizational goals and objectives. A good leader knows how to hire and keep good employees by following the rules and regulations that govern employment. This interactive online course will discuss several personnel issues of interest to all organizations. Whether you have 10 employees or 200 employees, just about every issue discussed in this SmartTeam course will, in some way, apply to your business. Issues discussed in this course include:<br>Personnel Administration (Management and Leadership, Hiring and Firing Practices, and Employee Manual/Handbook)Sexual HarassmentEqual Employment Opportunity (EEO)Drug Free WorkplaceThe Americans with Disabilities Act of 1990 (Including 2008 amendments) " | 2 | Fundamental |
| Sources of Electricity, Part 1 | Sources of electricity typically refer to the different types of fuel or power used to generate electricity. With the exception of solar power, these sources all involve spinning a copper wire between magnets. This course describes how electricity is produced through electrochemical production, magnetic induction, and the photoelectric effect. | 1 | Intermediate |
| Storytelling for Business | Use the power of stories to connect with your team and your customers. Storytelling is a powerful tool you can use to improve presentations, share a vision, sell products, and connect with customers and colleagues Join national award-winning storyteller Andy Offutt Irwin and leadership guru Kelly Vandever as they show you how to create, organize, and use your own personal and business stories. | 1.25 | Fundamental |
| Strategic Brand Management | Effective brand strategy necessitates taking a pan-company perspective to understand the organisation's competencies, identify new opportunities and leverage the advantage of corporate culture to deliver the brand promise. Brand success does not result just from focusing on customers, but rather from adopting a more balanced perspective by addressing stakeholders. In an era when it is easy to copy what a brand can deliver (functional values) it is more difficult to copy how the brand is delivered (emotional values). This session will address how by looking inside and outside an organisation brands can grow and be sustained. It will open by presenting a model to strategically grow and sustain brands, 'From brand vision to brand evaluation'. After explaining the model, the different elements of the model will be explored to show how the model can be used to develop valuable brands. | 2.92 | Intermediate |
| Stronger Together: Delegation and Task Management | "YOU CAN'T DO IT ALL! It's time to delegate. Delegation is perhaps the most important skill for a manager of people to learn and master. You can't do everything yourself, and you'll go crazy if you try! At the same time, delegation is challenging and it takes both commitment and an investment of time to get it right. The good news is, once you start delegating well, you'll be surrounding yourself with capable and empowered team members. This course follows the story of child prodigy, Brianca, and "Play All Day", the toy company she started with children like herself. Brianca learns quickly that the only way to accomplish her goals is to delegate well to those around her. Watch and learn as the "Play All Day" team grows together into a high-functioning team where each member feels valued and important. The course finishes with a bonus module on task management tools to help you keep track of your team's work. By the end of this course, you'll be inspired to go forth and delegate!" | 0.5 | Fundamental |
| Supporting Change: 01-The 3 Phases of Change | Understand the three phases of change and what to expect in each phase. | 0.08 | Intermediate |
| Supporting Change: 02-Reactions to Change | Identify the common reactions to change and strategies to best handle each type of reaction. | 1 | Intermediate |
| Supporting Change: 03-Your Path to Supporting Change | Learn and apply the five-step process for helping your team through changes in the workplace. | 1 | Intermediate |
| Supporting Change: 04-Mastering Supporting Change | Practice Supporting Change in a full scenario situation. | 1 | Intermediate |
| Supporting Change: 05-Supporting Change Health Check | Test your ability to apply Supporting Change concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Sustainable Building Technology | This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment. | 2 | Intermediate |
| Synchronous Motor and Controller Maintenance | Synchronous Motor Maintenance Power factor correction; Constant Speed under varying load; High efficiency; High torque at low speeds; Low Maintenance; Performance stability and Compatibility with Variable Speed Drives are among the many reasons for the popularity of Synchronous Motor Applications throughout industry. Like all manufactured products, however, Synchronous motor systems must be monitored and maintained or the performance benefits will diminish or disappear. This lesson focuses on the routine maintenance requirements for Synchronous motors and their controllers. | 1 | Intermediate |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
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| TDLR TEST Basic Electricity I | "This two hour interactive online course introduces basic electrical terms and calculations. Simple electrical circuits are used to illustrate the application of Ohm's law including the calculation of voltage, current, resistance and power in various circuit configurations. Basic electrical terms are defined and explained. This course includes a multiple choice quiz at the end. To comply with 2001 AIA and state requirements, all new online courses must be evaluated to confirm the assigned credit hour value. The assigned credit hour value for this course is 2 hours, pending confirmation within 90 days. Please be assured RedVector.com has NEVER had a course NOT meet its assigned credit hour value after evaluation, but has agreed to abide by the 2001 AIA and state requirements regardless. RedVector.com will refund the difference in price should any online course be assigned less credit than originally estimated." | 2 | Intermediate |
| Texas Electrician 4 Hour CE Program #5 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units. | 4 | Intermediate |
| Texas Electrician 4 Hour CE Program #6 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 4 | Intermediate |
| Texas Electrician 4 Hour CE Program #7 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 4 | Intermediate |
| The Art of Negotiation | From childhood we practice the art of negotiation. Bed time, a treat, a promotion, a raise, an extended deadline. Regardless of the type of work we do, knowing how to negotiate effectively can greatly impact our success and our satisfaction. Strategic application exercises and a rich multimedia process, will teach you basic skills to negotiate effectively to get the results you want. | 0.6 | Intermediate |
| The Power of One-Taking Accountability to Get Results | Have you ever said that something is not your responsibility? Maybe it is! Learn how taking accountability can change the results you are getting at work and in your life. This course uses application exercises and a rich multimedia process to give you the insight and skills to change your results through taking accountability. | 0.5 | Intermediate |
| The Power of Vision | Do you know where you're going professionally? Do you know what you want out of the next 3 weeks? How about the next 3 years? This course will help you create a powerful vision of where you want to go and what you want to achieve. You'll also learn how to get others on board with your vision. You will learn from real-world examples of different individuals and how they took their vision of what they wanted and made it a reality. Whether you are trying to get somewhere personally, or you want to create a clear and compelling vision of where you want your team to be, this course can give you the foundation you need to get pointed down the right path. | 0.5 | Intermediate |
| The Principles and Implications of the International Energy Conservation Code (IECC) v2012 | Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard. | 2 | Fundamental |
| The Safe Lab Environment | This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The Safe Operation of Utility Carts | Utility Carts are used in many types of facilities from warehouses to apartment complexes. This video addresses the many hazardous and potentially dangerous situations often overlooked by Utility Cart operators. It stresses the importance of following safety guidelines, and the problems caused by complacency in the operation and basic maintenance of these utility vehicles. Topics covered also include:Daily Inspections (tires, fluids, steering, obstacles)Load limitsOccupant & Pedestrian safetySpeeding, skidding & slick surfaces Turns, center of gravity & blind spotsBacking up, ramps and parkingRules for riders | 0.15 | Fundamental |
| The Science of Mold | "Mold is found throughout nature and is critical to the success of the food chain in forests and low land areas. Yet, if mold shows up in your home interior, it is usually a sign that something is wrong. If not dealt with correctly, mold will become a problem for the human inhabitants.<br>This course will introduce you to the fundamentals of what good and bad mold is, and why it should be respected but not feared. It will also provide the building blocks for a more complete understanding of what it takes for fungal growth and some simple steps toward safely remediating it from the indoor environment." | 1 | Fundamental |
| The Science of Personal Productivity | "Exploring the power of the mind to get more done.<br>Do you start your day by checking your email and then get stuck? Do you let one big task loom over your head and get in the way of your productivity? Do you find yourself saying "Yes" to too many tasks and then not having enough time to do anything well? If any of these sound like you, this course from Dr. Rebecca Heiss will help you understand more about why we find ourselves in these situations, and teach you practical, science-based ways to be more productive at work or home." | 0.75 | Fundamental |
| The Top 5 Marketing Mistakes | "What Is The Difference Between A Marketing Campaign That Delivers Average Results, And One That Boosts Profits And Changes Your Bottom Line? (Hint: The keys to effective marketing are in this course).<br>In this course, Rich Harshaw explains why his famous statement, ""Everything You Know About Marketing Is Wrong"" is so universally true, and what businesses can do to revamp their marketing strategies to achieve superior results." | 3 | Fundamental |
| The Ultimate Project Manager, Chapter 01: Today's Project Manager | "Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape.In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program." | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 02: Marketing And Proposals | Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the "go/no go" decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 03: The Contract Agreement | This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 04: The Project Management Plan | The purpose of this course is to provide you will the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 05: The Project Schedule | Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 06: The Project Budget | Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 07: Leading The Project Team | "The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team" | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 08: Managing Client Relationships | In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 09: Developing Effective Communications | Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The Ultimate Project Manager, Chapter 10: The Project Startup | A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 11: Managing Your Time | Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports | Because many design firms are consultingwith clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases | Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 14: Managing Project Quality | "Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects.<br>You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up" | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 15: Managing Project Risks | "The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm" | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 16: Project Financial Management | "Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its "as-sold" financial results with no write-offs. In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail." | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 17: Project Management And Design Technology | Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project | The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 19: Project Closeout | "Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide youryou through the processes and all considerations that should be accomplished in athat should be considered during project closeout.<br>You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout." | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods | "Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods." | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data | As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing. | 1 | Intermediate |
| The Ultimate Project Manager, Series Summary: The Short and Sweet Version | The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close. | 1 | Intermediate |
| The WELL Building Standard | How well does your building fit your tenants? Do your employees need a place to walk or work out? This interactive online course introduces the WELL Building Standard and discusses unique "features" (known as "credits" in LEED) to certify projects and gain the credential. We will discuss the application of the WELL standard to a hypothetical case study, conducting a feature-by-feature analysis and comparing the building before and after the standard is applied. | 3 | Fundamental |
| Three-Phase AC Induction Motor Maintenance | This course covers three-phase alternating current (AC) induction motors, which use magnetic induction to convert three-phase AC power into mechanical energy. They are used throughout industry to drive equipment such as conveyor belts, pumps, air compressors, and generators. Three-phase AC induction motors are economical, efficient, and reliable. But, although they are reliable, they may still break down. Electrical maintenance personnel are responsible for maintaining the three-phase induction motors in their plant and for fixing any AC motors that have broken down. | 1 | Intermediate |
| Time Management Basics | You can improve the way you use time. You can avoid patterns and habits that make it difficult for you to get things done. Benjamin Franklin said, Dost thou love life? Then do not squander time, for that's the stuff life is made of. | 1.5 | Fundamental |
| Tips for Managing Older Team Members | Being in a leadership position early on in your career is exciting. But on the flip side, you can face hurdles, including learning how to manage employees who may be years older than you. Older employees are a talent pool that shouldn't be underutilized despite the age gap. This video will provide some tips of what to do, and what not do to, when managing older team members. | 0.2 | Intermediate |
| Transformer Maintenance | This course is intended to provide participants with a basic background in transformer theory and connection schemes as well as an overview of the most common transformer types and the typical maintenance and testing procedures that apply to them. | 1 | Intermediate |
| Transformers | Substations and switchyards contain various types of transformers. Among them are power transformers, current transformers, and potential transformers. Each of these types of transformers has unique features that distinguish it from the other types of transformers and from other substation and switchyard equipment. In this course, you will learn about these transformers as well as their connections and basic principles. | 1 | Intermediate |
| Transformers, Breakers, and Switches | This course is designed to familiarize participants with basic concepts associated with the operation of transformers, circuit breakers, and various types of switches. After completing this course, participants should be able to explain the basic principles of transformer operation, identify some of the basic components of a transformer, and describe checks that are generally made during a transformer inspection. They should also be able to describe the general operation of a circuit breaker, explain how to reset a tripped circuit breaker and how to rack out a circuit breaker, and describe the basic operation of pushbutton switches and rotary switches. | 1 | Intermediate |
| Transition to Leadership | New to a leadership role? You're in the right place! As leadership, you have a different focus, new responsibilities, and different challenges than you did as an individual contributor. This course covers the ins and outs of the sometimes difficult transition experience from an individual contributor into leadership. Regardless of your title or the type of leadership role you now fill, through interactive assignments and a rich multimedia process, this course will smooth your transition and put you in position to excel in your new role. | 0.6 | Intermediate |
| Transmission and Distribution: Distribution Line Installation and Removal | "Sometimes changes are made in the area around a distribution line that make it necessary to relocate or replace a portion of that line. This interactive online course will familiarize you with the general procedures involved in completing a typical distribution line installation and removal. You will learn how to plane an installation and removal job and how to perform the major steps involved in doing the job. You will also learn how to pull and sag lines, parallel a new line with an existing line, remove conductors, and remove equipment." | 1 | Intermediate |
| Transmission and Distribution: Distribution Line Replacement | The purpose of this course is to teach how to replace conductors in an existing line with new conductors. The situation described is one that often occurs when it is necessary to increase the size of the conductors in a line. This interactive online course demonstrates how to install the new conductors, parallel them with the existing conductors, and remove the old conductors. The importance of maintaining the proper clearances and the importance of maintaining the integrity of the existing line are explained. Safety is emphasized throughout the course. At the conclusion of this course, participants should be able to plan a replacement job and demonstrate how to perform the major steps involved in doing the job. They should be able to install temporary crossarms, transfer lines, pull and sag new lines, parallel a new line with an existing line, and remove old conductors. | 1 | Intermediate |
| Transmission and Distribution: Focus on Distribution | "The transmission part of a transmission and distribution system supplies electricity to substations and individual service areas. While the job of the distribution part of a T&D system is to take this electricity and supply it to individual consumers at a voltage they can use; doing this job properly requires the use of a variety of electrical devices and an intricate system of distribution lines. This interactive online course will teach you about the components that make up a typical distribution system. You will learn how to recognize individual components and gain a basic understanding of the jobs they perform." | 1 | Intermediate |
| Transmission and Distribution: Framing Specifications and Basic Construction Diagrams | The purpose of this course is to teach participants the kinds of information that can be obtained by reading electrical system diagrams and to illustrate how this information can be used to assist lineworkers who work on electrical systems. Practical examples of how to get information are given throughout the course. At the conclusion of this course, participants should know what kind of information is typically found on construction diagrams, on schematic diagrams, and in specification manuals. They should know how to use all of these references to determine the information necessary to do a job. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Transmission and Distribution: Introduction to Transmission and Distribution Systems | The purpose of this interactive online course is to teach participants how transmission and distribution (T&D) systems generally deliver to customers the power produced by power plants. The course describes how the major components of a T&D system function and how electricity flows through these components on its journey from the power plant to customers. At the conclusion of this course, participants should have a basic understanding of how transmission and distribution systems operate. They should be able to identify the basic components of a transmission and distribution system and explain their functions. They should also be able to describe the flow path from a power plant, through a typical T&D system, to the customer. | 1 | Intermediate |
| Transmission and Distribution: Overhead Distribution Systems | The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed. | 1 | Intermediate |
| Transmission and Distribution: Pad-Mounted Transformers and Switchgear | The purpose of this interactive online course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer. | 1 | Intermediate |
| Transmission and Distribution: Power Quality | This interactive online course is designed to familiarize participants with the issues and problems associated with maintaining power quality. To obtain maximum benefit from this course, participants should have a general understanding of the basic concepts of electric power generation, transmission, and distribution. At the conclusion of this course, participants should be able to explain the basic concepts of power quality, identify sources and causes of power quality problems, and describe the effects of power quality problems on residential and commercial customers. They should also be able to identify equipment and methods for preventing and monitoring power quality problems. | 0.75 | Intermediate |
| Transmission and Distribution: Service Installation | "Each service installation job you do will be different because of different site conditions, but the basic installation skills and practices you will learn in this course can be applied no matter what type of service installation job you're doing. This interactive online course will teach you how to install and connect services. You will learn about the different types of connectors available and how service conductors are joined together using some of those connectors. You will also learn how to install single phase, overhead, and underground residential service. Additionally, you will learn how to install three-phase service, and how to replace an existing three-phase service without affecting the customer." | 1 | Intermediate |
| Transmission and Distribution: Substations and Switchyards | "Electricity affects almost everything we do. Sometimes its impact is so subtle, we don't even realize it's there. Just about everybody depends on it and expects it to be available when it's needed. From the businesses that use electricity to process information to suburban homeowners who rely on electricity for the basic conveniences we've grown accustomed to, to the rural dairy farmer who relies on electricity to operate much of his machinery, our entire country is interlaced with transmission and distribution systems that get electricity to where it's needed when it's needed. The purpose of this interactive online course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents." | 1 | Intermediate |
| Transmission and Distribution: Transmission Line Installation | The purpose of this interactive online course is to describe and demonstrate an approach to installing a transmission line. This work is not a routine part of a lineworkers's job in many locations, but an understanding of the basic approach is useful to individuals who are responsible for maintaining lines. At the conclusion of this course, participants should understand how to plan and set up an installation job, the purpose of guard structures, and how to set them up. They should also know how to pull conductors into place to properly sag and how to clip them permanently to the insulators. | 1 | Intermediate |
| Transmission and Distribution: Transmission Line Safety | This course is designed to cover three major areas relating to safety in transmission line work: personal safety, electrical safety, and work site safety. Specific attention is directed to proper clothing and protective equipment; hazards associated with slipping, tripping and falling, and lifting and moving loads; electrical hazards and steps that can be taken to safeguard against them; and how personnel can work safely at the job site, both on the ground and while climbing transmission structures. This interactive online course assumed a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction. | 1 | Intermediate |
| Transmission and Distribution: Underground Residential Distribution Systems | "Recent developments in technology, such as the development of cable and equipment that can be directly buried in the ground have made underground installation of electrical service to residential areas easier than ever. Today, many residential subdivisions have all their utilities installed underground, giving a cleaner, more picturesque look to the neighborhood.<br>This interactive online course is about underground residential distribution systems, also known as URD systems. URD systems are local distribution systems designed primarily to be buried in the ground and serve residential customers.The purpose of this course is to give you a basic understanding of the common types of URD systems, as well as some of the various components that may be used in a URD system. We'll also be looking at some of the ways a URD system can be inspected. Finally, we'll see a demonstration of how a URD system has been set up to allow work to be done on it safely and efficiently." | 1 | Intermediate |
| Transmission and Distribution: Using Line Test Equipment | The purpose of this course is to introduce types of line test equipment used in the field to detect voltage, amperage, and resistance; to show how this equipment is used; and to show the kinds of readings that can be expected from this equipment. After completing this course, participants should be able to identify types of line test equipment used in the field. They should have a basic understanding of the use of this equipment; they should know how to determine which instrument to use; and they should be able to demonstrate the use of each meter to take a reading. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Transmission and Distribution: Using Various Types of Electrical Diagrams and Geospatial Information Systems | Did you know different types of electrical system diagrams are used to show large portions of an electrical system down to a single structure or even a portion of a structure? The purpose of this course is to teach the basic kinds of information that can be obtained from various types of electrical system diagrams: one-line diagrams, plan-profile diagrams, framing diagrams, and GIS technology. The course shows how these diagrams are read and interpreted and how information can be used to complete an assignment. This interactive online course will show participants what information is typically found on one-line, plan profile, framing diagrams, and GIS applications. They should also be able to interpret diagrams to determine the location of a job site and then plan the best route to the site. In addition, participants should be able to use a framing diagram to determine what materials should be present at a work site and in what quantities. | 1 | Intermediate |
| Transmission and Distribution: Working on Distribution Poles | "The purpose of this course is to teach the basic principles involved in working safely on distribution. To illustrate these principles, you will be shown some resources available for planning distribution work.<br>This interactive online course will teach you general considerations associated with planning a distribution job. You will also learn how a variety of tools and equipment can be used, including an auxiliary arm. Additionally, you will learn how to replace secondary conductors, move energized conductors, and how to install floating dead-ends. " | 1 | Intermediate |
| Tree Trimming Safety | Tree trimming is a job that requires a professional attitude and a high level of training in order to work safely and productively. The very nature of tree trimming lends itself to many hazards. Of course, we all are aware of the potential of a serious fall, but there are also risks of coming in contact with energized utilities, falling trees and limbs, contact with poison ivy, oak, or even snakes. A good tree trimming program must be designed to provide safe working conditions, the training needed to do the job safely and efficiently, selection of qualified personnel, and providing well-maintained tools to do the job.Topics covered also include:Saws, axes, and pruning toolsChainsaw usePersonal protective equipmentSafety belts, climbing spikes, and harnessesWorking from ladders, boom trucks or aerial basketsPlanning and other considerations that need | 0.25 | Fundamental |
| Troubleshooting Systems and Circuits | Electrical problems may show up anywhere at any time. Some problems are as simple as an abnormal signal value that can be corrected by a minor adjustment. Other problems are not as easy to identify and correct, especially when the cause of the problem is in a non-electrical component or in another system. Regardless of the cause, electricians are responsible for zeroing in on problems whenever they occur and bringing things back to normal. A good way to ensure that the proper actions are taken in response to an electrical problem is to follow a troubleshooting procedure that is both systematic and logical. This course describes the basics of troubleshooting, general guidelines and action steps, and a seven-step troubleshooting method for solving problems. | 1 | Intermediate |
| Understanding Fire Sprinkler Drawings and Calculations | Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed. | 1 | Intermediate |
| Understanding Gender and Gender Identity | Having an understanding of gender and gender identity is important in today's society. While it feels natural to describe people using the terms we were taught since early childhood, the female-male binary no longer applies to everyone. In this video we'll discuss what gender identity is and provide some tips for respecting everyone's deeply held sense of self. | 0.2 | Intermediate |
| Understanding Moisture Intrusion and Its Impact on Mold Growth | The basic role of a building is to protect the indoors from the outdoors. That includes water intrusion. Water intrusion can happen in many ways and can have a detrimental effect on the structure and the people within. This course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth , as well as the proliferation of other micro-organisms. | 1 | Fundamental |
| Uninterruptible Power Supply (UPS) System Efficiency | "Uninterruptable Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime.<br><br>Note: This course offers subtitles in Brazilian Portuguese and Spanish." | 1 | Fundamental |
| Use of Ohm's and Kirchhoff's Laws in DC Circuits | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that commonly is referred to as Ohm's law. Ohm's law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. The letter I is used to represent current, E represents voltage, and R represents resistance. Using these symbols, Ohm's law can be expressed as I=E/R. Kirchhoff's two laws also reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. In this course, participants will learn how to use these laws when working with direct current (DC) circuits. | 1 | Intermediate |
| Using Electrical Test Equipment | Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be "qualified." A person who does not meet this requirement should work under the direct supervision of a qualified person. This interactive online course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. | 1 | Intermediate |
| Valves: Basic Types and Operation, Part 1 | In most industrial facilities, process systems handle many different types of fluids. The flow of these fluids through plant piping systems is controlled by valves. To keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. In this interactive online course, we will discuss the various uses of valves, their parts, and valve connections. | 0.5 | Intermediate |
| Valves: Basic Types and Operation, Part 2 | The purpose of this course is to provide participants with a general understanding of the basic types and operation of valves. The flow of fluids through plant piping systems is controlled by valves. In order to keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. At the end of this course, participants will have a better understanding of the types, purposes, and applications of various valves. | 1 | Intermediate |
| Valves: Electric and Hydraulic Actuators | This course is designed to introduce participants to various types of electric and hydraulic actuators that are used to control valves in process systems. After completing this course, participants should be able to describe the basic operation of solenoid actuators, motor-operated actuators, and various types of hydraulic actuators. They should also be able to explain the function of a pilot valve and describe problems associated with hydraulic actuators. | 2 | Intermediate |
| Valves: Introduction to Actuators | Some of the valves that are used to control the flow of fluids in process systems have to be opened, closed, or throttled frequently. Manually positioning these valves using handwheels or levers is not always practical. Instead of handwheels or levers, actuators are often used to position the valves. This module is designed to introduce participants to actuators in general and pneumatic actors in particular. | 1 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Variable Speed Drives: Common Applications | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. In addition, the motor and controller combination, the drive, is frequently integrated into an existing production process or system. This course will examine some of the common applications for VSDs. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 1 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 2 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Installation | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. This course will examine a typical VSD installation, how to get it running, and how to keep it running while making its operation and maintenance as trouble-free as possible. | 1 | Intermediate |
| Variable Speed Drives: Introduction to VSDs | Variable speed drives (VSDs) are used throughout the industry to electronically regulate the speed and the torque of motors. With nearly half the energy in the world consumed by rotating machinery, the applications for VSDs are enormous, and their use is spreading rapidly. When applied and installed properly and when operated and maintained correctly, VSDs can substantially reduce the power required for the work being done and can provide the precision control that is now demanded by modern industry throughout the world. | 1 | Intermediate |
| Variable Speed Drives: Programming AC Controllers | This course describes alternating current (AC) controller setup procedures, AC controller frequency options and other parameter settings, and AC controller I/O configuration. The course illustrates how to interpret AC controller fault monitoring, alarms, and diagnostics. Finally, the course explains flux vector programming. | 1 | Intermediate |
| Variable Speed Drives: Programming DC Controllers | Wherever variable speed drives (VSDs) are used, they must be programmed to meet the needs of the specific application. Sometimes this means little more than firing them up and letting them run, maybe just punching the drive up to the required speed. But more often it means a variety of settings must be programmed into the drive. This course will focus on programming the controllers for variable speed direct current (DC) motors. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 1 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 2 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: Systems and Integration | When variable speed drives (VSDs) are used in industrial applications, they usually are not used by themselves. Although single motors and single controllers are sometimes used in isolated applications, the more usual application is one in which many motors and many controllers are interlinked into a larger automated system that includes many types of processes. This course will examine the ways in which VSDs and automated systems are linked together. | 1 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #1 | Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well. | 3 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #2 | | 3 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #3 | Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements. | 3 | Intermediate |

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# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Virginia 2017 NEC 3 Hour CE Program #4 | Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables | 3 | Intermediate |
| Walking and Working Surfaces | Slips, trips, and falls constitute the majority of general industry accidents, second only to motor vehicle accidents. They cause 15% of all accidental deaths, and are third only to motor vehicles and violence as a cause of fatalities. The OSHA standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed and if appropriately applied, can reduce lost work time. This interactive online course details the OSHA standard in a practical format with easy to implement solutions to provide a workplace that is free from hazards to better protect the workplace and reduce unnecessary costs. | 0.5 | Intermediate |
| Warning Signs and Labels (BBWSAL0CEN) | This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Washington Electrical Contractor 4 hour program #1 | This 4-hour course is formatted in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices tha | 4 | Intermediate |
| Wastewater Treatment and Reclamation: Asset or Liability | Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and "throw it in the ocean" nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the "water" from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant. | 1 | Intermediate |
| Water-Based Fire Suppression Systems | With 3,000 deaths and 16,000 injured each year, fire continues to make its mark on society. In addition, about 100 firefighters each year die in the line of duty. Property losses due to fire reach almost $12 billion a year, and most of these deaths and losses are preventable. In this interactive, online course, you will learn the basic, but critical, aspects of water based fire suppression systems. This course will discuss deluge systems, preaction systems, dry pipe systems, water mist systems, standpipe systems, and fire hydrants. The information you gain from this course will enhance your ability to appreciate the challenges of the fire protection system designer, trying to integrate their system with other disciplines. Utilizing this real-life knowledge will ensure a safe and code compliant project regardless of your contribution to the project. | 1 | Fundamental |
| What's New in Excel 2019 | "Updates In Excel 2019 Optimize The Worlds Most Popular Spreadsheet For Modern Business Making It Easier To Draw, Add Graphics, Manipulate Text, and More!<br>The updated Microsoft Excel 2019 includes new tools and capabilities that can help regular users and new users alike." | 0.75 | Intermediate |
| What's New in PowerPoint 2019 | "Impress Your Peers with the Latest and Greatest Features of PowerPoint 2019!<br>Microsofts latest release of PowerPoint 2019 packs quite a punch. With 3D models and vector graphics, your presentations can be more professional and visually pleasing than ever before. The new Morph transition and Zoom features can turn a boring slideshow into a guided tour. Updates to the Recording features make it easier than ever to create and share recorded presentations. Last but not least, with added features for Translation, Dictation, and Accessibility, PowerPoint is now truly a tool for everyone." | 1.25 | Intermediate |
| What's New in Word 2019 | "New Editing and Image Features Improve The Worlds Most Popular Document App<br>The new Microsoft Word 2019 includes a slew of new tools and capabilities that can help regular users and new users alike." | 1.25 | Intermediate |
| What's New in Adobe CC 2015? | Adobe Certified Expert Amy Roberts takes us through all the new features and updates in Adobe Creative Cloud 2015s Premiere Pro, After Effects, Adobe Stock, and Audition, with quick looks at new mobile collaboration tools Adobe Hue, Premiere Clip, and Adobe Color. | 1.5 | Intermediate |
| What's New in Office 2016? | "Learn how Office 2016 makes it easier than ever to save your work to the cloud, share and collaborate with others, and produce professional documents.<br>Microsoft Office 2016 is an evolutionary improvement that refines dozens of features and adds a few new tricks too. In this course Kelly Vandever and Jason Farr explore the improvements to Microsoft Office in 2016." | 1 | Intermediate |
| Wind Design Using ASCE 7-16 | Have you kept current with ASCE's building design provisions? This interactive online course will describe the wind design changes that have occurred in ASCE 7-16 and how those changes will affect the practice of wind design when the 2018 building codes are adopted by local jurisdictions or when practitioners begin to use the revised standard. | 2 | Intermediate |

# Facilities Management & Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Windows 10 Essentials | This Course Is For People New To Windows 10 - Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. Windows 10 combines the best features of Windows 8 with a more traditional navigation structure and layout, plus some new modern benefits. | 1 | Fundamental |
| Windows 8.1 Essentials | "This Course Is For People New To Windows 8 Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality<br>When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. In fact, Windows 8 represents the biggest change in the Windows operating system since Windows 95." | 0.5 | Fundamental |
| Work Life Balance | Do you live to work or work to live? In this course you will explore your motivation and priorities, and discover how the answers to strategic questions can help you create a healthy rewarding balance between the activities in your life. Through interactive assignments and a rich multimedia process, this course will help you realign with your priorities and experience the life you desire. | 0.5 | Intermediate |
| Worksite Safety 01: OSHA Safety Introduction | "The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 02: OSHA Electrical Safety | "OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 2 | Fundamental |
| Worksite Safety 03: OSHA Fall Protection | "Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR,Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some "do's" and "don'ts" for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 04: OSHA Struck-By & Caught-Between Accidents | ""Struck-by" and "caught-between" accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics.<br>OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1.5 | Fundamental |
| Worksite Safety 05: OSHA Personal Protective Equipment | "Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 06: OSHA Scaffolds | "An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work.<br><br>OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 07: OSHA Cranes & Other Hoists | Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 08: OSHA Power Tools and Excavations | "It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |

| Facilities Management & Maintenance (Continued) | | | |
|---|---|---|---|
| **Title** | **Description** | **Hours** | **Level** |
| **Worksite Safety 09: OSHA Materials Storage** | "The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| **Worksite Safety 10: OSHA Demolition** | "Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| **Worksite Safety 11: OSHA Hazards in Communication** | "There are already more than 650,000 hazardous chemical products in circulation around any number of workplaces in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 0.5 | Fundamental |
| **Writing in Plain Language** | "Write emails and documents that are read, understood, and acted on. We are overwhelmed with information today—in both our personal and business lives. Sometimes it's better to get straight to the point, in a way that doesn't waste your reader's time yet doesn't compromise your professionalism either. This course teaches you how to use plain language to address your reader's needs. What do they really need to know? What do you want them to do? We'll teach you how to think about your reader's purpose and to write for them so they get the message and your writing does its job." | 1.25 | Fundamental |
| **WSI - Groundskeeping Safety** | After a frightening incident, expert workplace investigators are called to crack the case. In the midst of the story, viewers will learn about the hazards of exposure to the various machinery and elements of outdoor work environments. In this unique video, emphasis is placed on working in the elements and how to recognize, prevent and handle heat stress and a variety of other outdoor situations. This landscaping safety video is designed to prevent complacency from entering into your landscaping training. | 0.25 | Fundamental |

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# Commercial Facilities Maintenance

| Title | Description | Hours | Level |
|---|---|---|---|
| HVAC - Air Side: Air Balance Basics | A Heating, Ventilation and Air Conditioning system (HVAC system) is a group of components working together to "condition" the air in an enclosed space. The components ensure that the air in this space is clean and odor free, and that its temperature, humidity and circulation rate are maintained within desired ranges. This interactive online course focuses primarily on what an HVAC system air balance is, and how to achieve one. | 0.5 | Fundamental |
| HVAC - Air Side: Air Distribution | Do you know the meaning of the term "building static"? How about "flow balancing"? The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. An HVAC system is a group of components working together to "condition" the air in an enclosed space. This interactive online course focuses primarily on the components that move, distribute, and control the flow of air through HVAC systems. | 0.5 | Fundamental |
| HVAC - Air Side: Air Handling in Commercial Buildings | "The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This interactive online course focuses primarily on the components which condition and move the air that flows through HVAC systems." | 0.5 | Fundamental |
| HVAC - Air Side: Hot & Cold Calls | "There are a number of skills needed by any individual who responds to the hot and cold calls made by uncomfortable occupants of a building. First, a person must have a complete understanding of the HVAC system in question.<br>Second, they need to have some training in methodical problem-solving techniques or troubleshooting.<br>Finally, the individual requires "people skills", that is, the ability to interact with sometimes-frustrated clients without becoming defensive, angry or unpleasant.<br>In this interactive online course, we will focus on how to methodically approach solving comfort-related problems. We will also discuss some best practices for handling customer interactions during hot and cold calls." | 0.5 | Fundamental |
| HVAC - Air Side: Introduction to Air Handlers | Did you know some air handlers have an airside economizer mode that will delay or eliminate the need for mechanical cooling if the outside air is cooler? The components, in an HVAC system, ensure that the air in this space is clean and odor free, and that its temperature, humidity and circulation rate are maintained within desired ranges. This interactive online course cover the components of an air handler, the operational functionality of an air handler, the methods of air handler maintenance, and the benefits and operation of an outside air economizer. | 0.5 | Fundamental |
| HVAC - Air Side: Variable Air Volume (VAV) Systems | How can you increase the efficiency of an HVAC system? The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. This interactive online course focuses primarily on the terminal units, or VAVs that increase the efficiency and add flexibility to an HVAC system. | 0.5 | Fundamental |
| HVAC - Air Side: Terminal Units | "The purpose of Heating, Ventilation and Air Conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. Residential, commercial, and industrial facilities use HVAC systems. An HVAC system is a group of components working together to "condition" the air in an enclosed space. The components ensure that the air in this space is clean and odor free, and that its temperature, humidity, and the circulation rate is within desired ranges. This interactive online course focuses primarily on the terminal units, or VAVs, that increase the efficiency and add flexibility to an HVAC system." | 0.5 | Fundamental |
| Building Automation Systems (BAS) Operations | "BAS: What is it and how does it help us identify equipment failures and reduce energy? Building Automation System or BAS Operations are one of the most critical tasks for controlling of any building. It allows the facility to quickly identify equipment failures and reduce energy usage by implementing smart controls for the building. This interactive online course is intended for building maintenance, HVAC technicians, and Facility Managers. It will cover the fundamentals of automation equipment and explain how the BAS can assist the user in identifying problems and possible solutions." | 0.5 | Fundamental |
| Direct Digital Controls (DDC) Building Automation Basics | Did you know a building automation system allows building related equipment to be centrally monitored, adjusted and controlled? Building automation systems take in analog and digital information from sensors, make decisions based on time of day and desired setpoints, and send commands to controllers and actuators. Centralized programming and control optimize building energy usage and occupant comfort. This interactive online course covers how maximum use of the various components of a BAS system can produce cost saving opportunities for your facility. | 0.5 | Fundamental |
| Pneumatic Building Automation Basics | "Pneumatic systems are simply a division of engineering which uses gas or pressurized air. Pneumatic control systems can be effective and economical. In HVAC systems, this control method relies on sensors and thermostats that retain the line pressure from the sensor to the control device and the actuator. This interactive online course will provide a basic understanding of the components that make up a pneumatic system including the conditioning and operating systems. An introduction to pneumatic actuators, electro-pneumatic transducers, and pneumatic thermostats is included. Additionally, you'll learn about certain hazards associated with maintaining a pneumatic system and the proper safety precautions and maintenance techniques that will minimize these hazards." | 0.5 | Fundamental |
| Building Automation Systems (BAS) Architecture | "BAS: What is it and how does it simplify our lives? Building automation describes the advanced functionality provided by the control system of a building. A building automation system (BAS) is an example of a distributed control system.<br>The control system is a computerized, intelligent network of electronic devices designed to monitor and control the mechanical, electronics, and lighting systems in a building. This interactive online course will discuss the BAS topology and will include topics such as primary and secondary bus, as well as analog and digital input and output." | 0.5 | Fundamental |
| Carpentry Safety | Did you know personal protective equipment is considered the last line of defense? You will be introduced to several hazards and risks associated with performing basic carpentry tasks. Carpentry involves the use of hand and power tools, and equipment, to complete repairs on items such as cabinets, windows, flooring, and other parts of a building structure. This interactive online course will provide recommended safe work practices to avoid injury and illness. | 0.5 | Fundamental |
| Carpentry Basics | "Did you know a constantly changing physical environment increases the chances of being injured? Carpentry is a skilled trade in which the primary work performed is the cutting, shaping and installation of building materials, primarily wood, during the construction of buildings and other structures. Carpentry typically occurs in a construction area. This interactive online course will cover some of the skills needed to practice good carpentry." | 0.5 | Fundamental |
| Doors and Hardware Basics | Do you know how to fix a door that is sticking? How about one that closes too fast? This interactive online course will describe the fundamentals of commercial door hardware and provide the knowledge to perform basic troubleshooting and repair techniques for some common problems. | 0.5 | Fundamental |
| Doors and Hardware Maintenance and Repair | Commercial doors must be strong and durable to withstand frequent use, and like any other building component, they require maintenance to keep them functioning correctly. This interactive online course will discuss door and door hardware maintenance and repairs associated with commercial building installations. | 0.5 | Fundamental |
| Carpentry Basics: Drywall Repair | In some situations, you may have to repair drywall that has been damaged or repair drywall that was improperly installed by someone else. This interactive online course will explain and describe the tools, materials, finishing techniques and procedures used in repairing drywall. | 0.5 | Fundamental |

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# Commercial Facilities Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| MRO Stockroom Management | What would happen if you are out of stock of a very important part? MRO, or maintenance, repair, and operations requires identifying which parts need to be on hand based on frequency of failures and balancing the cost of inventory. This interactive online course will discuss how to maintain hardware MRO stock, how to manage consumables, and the benefits and costs associated with MRO management. | 0.5 | Fundamental |
| Carpentry Basics: Painting | "Did you know painting involves various factors such as the composition of paint; the various paint systems, and the procedures for preparing a surface and applying the paint correctly? In addition, choosing the proper tools for a job from start to finish is required. This interactive online course will discuss the correct methods, tools, and procedures to perform a good paint job." | 0.5 | Fundamental |
| Carpentry Basics: Tools and PPE | "Hand and power tools must be used properly and maintained at all times. Tools that may have been damaged or do not work properly can be dangerous to use. The tools need to be clean, dry and well-maintained. This interactive online course will explain the different types of hand and power tools used in general repair situations and the proper care and use of them to promote safe practices within your facility." | 0.5 | Fundamental |
| Cooling Basics | Did you know there are two types of cooling systems used in HVAC applications? Cooling systems remove heat from air - sensible heat from the gases in air and latent heat from the water vapor in air - in order to produce the desired temperatures and humidity levels in enclosed spaces. This interactive online course covers sensible heat and latent heat, British thermal units, the three laws of thermodynamics, and the cooling equipment that is used in HVAC systems. | 0.5 | Fundamental |
| Cooling System Maintenance | Cooling systems remove heat from building air in order to produce the desired temperatures and humidity levels in enclosed spaces. These electro-mechanical systems require routine inspections and maintenance to keep them functioning properly. This interactive online course covers how to inspect and maintain cooling system drive belts, and best practices for greasing bearings and cleaning of cooling system coils. | 0.5 | Fundamental |
| Cooling Theory | How do you properly cool a building? Cooling systems are used to cool and condition the air in rooms and building. To do this, they must remove heat from the air. How much heat needs to be removed to reach the desired temperature? What about humidity - the amount of water vapor in the air? Humidity affects how much heat we feel so it must also be addressed. This interactive online course will address these and other cooling system-related topics and issues. | 0.5 | Fundamental |
| Cooling: Hot & Cold Call Basics | "Who turned down the thermostat? Why is it so cold in here?" Individuals who respond to hot and cold calls made by uncomfortable building occupants must have a certain set of skills, including a thorough understanding of the heating/cooling system in question, training in problem-solving or troubleshooting techniques, and people skills. This interactive online course will discuss how to methodically approach cooling system-related complaints and problems, as well as desirable personality traits and useful problem-solving techniques for effective customer service representatives. | 0.5 | Fundamental |
| Basic Electrical Maintenance | "Do you know how to troubleshoot common electrical systems? This interactive online course on basic electrical maintenance will equip you with the knowledge you need to safely identify and troubleshoot common and standard electrical systems and components found in commercial buildings. Whether you're responsible for performing the maintenance, supervising maintenance personnel, or planning projects in this area, this information is critical for you to be aware of, and will allow you to lead and guide others in your organization. Knowledge of the typical electrical components covered in this course will be critical for your personal safety, and the safety of others that you're working around. Improper actions or conditions encountered with these devices and components could result in serious unsafe conditions, including fire hazards, electrical shock, and even death. This course will show you how to avoid these conditions while operating and resetting GFCI receptacles and while replacing ballasts, light switches, and electrical receptacles." | 0.5 | Fundamental |
| Basic Electrical Theory | "Do you know the difference between current and voltage? This course on basic electrical theory will equip you with the knowledge you need to handle various calculations involving electrical circuits, both AC (alternating current) and DC (direct current). You will learn how to calculate voltage and electrical power in a circuit using Ohm's Law and Watt's Law. In this interactive online course, we'll discuss how to determine the electrical resistance for the wiring in a circuit and the size power unit that will be needed to drive a piece of equipment. Finally, you'll learn the difference between single- and three-phase power." | 0.5 | Fundamental |
| Basic Electrical Troubleshooting | "In this interactive online course, you'll learn basic electrical troubleshooting concepts. You'll learn the difference between a step-up and a step-down transformer, how to test for unbalanced loads and blown fuses, and how to tell if the insulation on a wire is adequate so it doesn't present a hazard. You'll be introduced to tools such as a clamp-on ammeter, megohmmeter and voltmeter used in the practice of electrical troubleshooting. The information covered in this course can be applied at your facility for safe work on large and small electrical components." | 0.5 | Fundamental |
| Electrical Architecture | "An electrical circuit is a conductive path through which electrical current can flow. In this interactive online course on Electrical Architecture, you'll gain a knowledge of technical requirements on individual electric components, equipment, and entire electrical systems. Key principles covered in this course include switch circuit arrangements, dedicated vs. shared circuits, circuit voltages, heater contactors, and the basics of electrical wiring." | 0.5 | Fundamental |
| Electrical Safety | Electricity is an essential element of the workplace. It provides light, heat, motive power and communications, but it is also dangerous. The need to constantly maintain, repair and upgrade electrical equipment means that employees will sometimes be in close vicinity to electricity and therefore exposed to some risk. This interactive online course covers the dangers of an arc flash and the effects of different current flows on the body. It describes the importance of a lockout tagout program and the goal of the NFPA 70E standard. | 0.5 | Fundamental |
| Electrical Theory & Mathematics | An understanding of basic electrical theory and mathematics is valuable for all electrical work. In this interactive online course, you'll learn critical principles of Electrical Theory, and the Mathematics involved in performing calculations to solve electrical circuit parameters, such as voltage, amperage, resistance and power. This course will introduce you to Ohm's Law, Watt's Law, Kirchoff's Law, and Faraday's Law. | 0.5 | Fundamental |
| Lockout/Tagout & Basic Arc Flash | Electricity is an essential element of the workplace. It provides light, heat, motive power, and communications, but it is also dangerous. The need to continually maintain, repair, and upgrade electrical equipment means that employees will sometimes be in close vicinity to electricity and therefore exposed to some risk. This interactive online course explains the dangers of an arc flash and how to protect against an arc flash, as well as the basic principles of a lockout tagout program. | 0.5 | Fundamental |
| Volt/Ohm/Amp Meters | Volts, ohms and amps are important characteristics of all electrical circuits. There are dedicated instruments for measuring each of these quantities, but it more is common to use a single meter that is capable of measuring all three. This interactive online course covers how to take voltage, amperage, and resistance measurements, as well as the precautions to take when making such electrical measurements. | 0.5 | Fundamental |
| Basic Emergency Power Systems | In this country, as well as in most other developed countries, we have gotten used to the conveniences and comforts that electricity provides. Much, if not most, of our modern technology is heavily, or totally dependent on electricity as its energy source. This interactive online course covers the basics of Standby Electrical Power Systems. These are power systems which remain in a standby mode (meaning "ready to go") just-in-case the utility-supplied electricity to a campus, a building, or an individual room fails, for whatever reason. | 0.5 | Fundamental |

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# Commercial Facilities Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Intermediate Emergency Power Systems | Did you know if you let a diesel engine run entirely out of fuel it will be necessary to "bleed" the fuel injector lines? We will be looking at how and why a generator actually produces electricity, as well as how a diesel internal combustion engine works. We will carefully examine how the generator head, the internal combustion engine, and ancillary components, work together to provide emergency power when it's needed. We will also examine safe and effective maintenance practices regarding the generator and its' peripheral components. This interactive online course covers the steps to test and maintain a battery, the standard components which make up a generator system, the items to inspect before manually starting a generator and will explain how to inspect the coolant system. | 0.5 | Fundamental |
| Emergency Power Testing | Did you know when standby/emergency generators fail to start during an actual emergency the very real possibility exists that lives could be lost, or businesses could lose? To achieve maximum system dependability, a scheduled series of inspections and tests must be performed. Due to the potentially life-affecting nature of being without power altogether, or the possibly of a system actually causing life-threatening conditions, several government agencies have established minimum requirements for inspecting and testing emergency standby generators. This interactive online course addresses ways to maximize reliability in standby power systems. | 0.5 | Fundamental |
| Energy Accounting | "Buildings are constructed to provide enclosed environments within which people can comfortably live and productively work. Creating comfortable, productive environments requires energy, and energy costs money. Buildings account for 76% of all the electricity consumed in the U.S. With that much energy being consumed, there are certainly going to be some opportunities for improvements in operational efficiency. This interactive online course will cover some of the concepts and terms needed to understand and manage energy consumption." | 0.5 | Fundamental |
| Energy Management Basics | Buildings account for 76% of all the electricity consumed in the U.S. With that much energy being consumed; there are certainly some opportunities for improvements in operational efficiency. In managing the energy consumption of a building there are two goals, one is to provide and maintain the comfort of the occupants, and one is to minimize the amount of energy, and therefore money, consumed in the process. This interactive online course will cover some of the terminology and skills involved in basic building energy management. | 0.5 | Fundamental |
| Low/No Cost Energy Savings Opportunities | In managing the energy consumption of a building, there are two goals. One is to provide and maintain the comfort of the occupants, and one is to minimize the amount of energy, and therefore money, consumed in the process. This interactive online course will cover some low-cost methods that can be used to minimize building energy consumption. | 0.5 | Fundamental |
| Fire Systems: Fire Alarm Control Panel | "Fire alarm system equipment and installations are regulated and controlled by various national, state, and local codes. When referring to fire alarm systems, you will most likely work with different types throughout your career. Understanding the basic signals on a fire control panel will help you to feel comfortable with operating the system. This interactive online course will briefly discuss fire codes, types of fire alarm systems, and how to handle various fire alarm conditions. You'll learn the ins and outs of initiating systems and how to test, check, and troubleshoot your fire alarm system." | 0.5 | Fundamental |
| Fire Systems: Fire Extinguishers | According to the National Fire Protection Association (NFPA), in 2014 there were 494,000 structure fires, causing nearly $10 billion in property damage. In the event of a fire, every second counts. Being prepared to use safety equipment properly, removing yourself from danger, and calling for help can literally save your life and the lives of those around you. This interactive online course will teach you the basics of how fire extinguishers work. You will also learn the different types of fire extinguishers and their ratings systems. | 0.5 | Fundamental |
| Fire Systems and Sprinkler Basics | A fire system has several devices working together to detect and warn people through visual and audio appliances when smoke, fire, or other emergencies are present. A fire sprinkler system is known as an active fire protection system that consists of a water supply system that provides adequate pressure and flow rate to a water distribution piping system, and then to the fire sprinklers connected to the system. In this interactive online course, we will discuss the components of fire systems and fire sprinkler systems. | 0.5 | Fundamental |
| Fire Systems: Life Safety Testing | "Today's modern expansive high-rise buildings have one important thing in common - their populations can rise into the hundreds or thousands of people. The building standards address every aspect of fire protection to assure the highest level of life safety achievable, but can only be achieved with the help of the Facility Professional. This interactive online course will look at various aspects of Life Safety as it relates to building operations, population control, fixed fire protection systems and fire department intervention facilities. Understanding the systems under your responsibility as the Facility Professional is key to the proper maintenance of these systems. This course will review the interaction between systems and stress the importance of monitoring and testing regularly." | 0.5 | Fundamental |
| Fire Systems: Wet & Dry Sprinkler Systems | Did you know wet pipe sprinkler systems provide the assurance that a fire will be controlled or extinguished 96% of the time? The modern-day business facility is a complex of systems designed to provide services to the occupants. Due to the multi-story expansive building designs today, there is an increased potential for loss of life and property, requiring an increased level of fire protection. This interactive online course covers the different types of sprinkler systems you may encounter and will help you understand their limitations to maintain the level of performance designed into each component. | 0.5 | Fundamental |
| Heating Systems Basics | "Heating systems are one of the many ubiquitous conveniences of modern life. For many of us, central heating systems have always been a part of our lives.We only seem to notice heating systems when they are malfunctioning. Yet it took inventors and scientists to discover and understand heat transfer to then apply these principles for us to depend upon reliable heating systems. It behooves design engineers, operators and maintenance personnel to have a basic understanding of a few heat transfer concepts to ensure proper operation of heating systems. This interactive online course will discuss three types of heat transfer; convection, conduction and radiation.It will show how heating systems operate utilizing these forms of heat transfer acting in concert with each other.The operation of hot water and steam boilers along with electric heater will be examined.Finally, a brief explanation of controls for heating system will be presented." | 0.5 | Fundamental |
| Heating Theory | Did you know without proper control of boiler water chemistry, corrosion, scale buildup and fouling of boiler tubes can occur which will impact boiler efficiency and may result in tube failures? Boilers are a common device for converting fuel into heat by burning fuels for heating water and generating steam for heating and powering equipment. The two general types of boilers are hot water boilers and steam boilers The water used in boilers has to process the correct chemical makeup to prevent corrosion, scaling and fouling of boiler internal parts. This interactive online course covers the theory of heat transfer. It will cover the three laws of Thermodynamics, methods of heat transfer, how heat is measured and the pressure -temperature relationships in heating systems. | 0.5 | Fundamental |
| Hot Water Boilers | Boilers are fuel-burning appliances that produce either hot water or steam that gets circulated through piping for heating or process uses. The boiler operator is responsible for the safe and efficient operation of the boiler system and with proper maintenance, a hot water boiler will provide reliable heat and hot water to facilities for many years. This interactive online course explains how a boiler works and the different types of boilers. It describes the responsibilities of a hot water boiler operator and the short- and long-term inspections and maintenance for boiler systems. | 0.5 | Fundamental |

# Commercial Facilities Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Steam Boilers | "The purpose of a steam boiler is to create steam by applying heat energy to water. The most common source of heat is that from the combustion of an organic fuel like natural gas, fuel oil or coal.The value of steam in a commercial building is that it is an effective medium for distributing heat throughout a building or even a group of buildings.<br>The combination of a steam boiler and steam distribution system means that all the heat generation can be done efficiently in one location and the steam can be easily distributed to all of the places it is needed for heating.<br>In this interactive online course, we will discuss the function of boilers and steam. We will cover different types of boilers, including fire tube boilers and water tube boilers. We will also discuss combustion and steam traps." | 0.5 | Fundamental |
| Hydronic Systems: Cooling Tower Basics | "Did you know dry-coolers can only take advantage of the difference between the water temperature and the dry-bulb temperature, so they cannot support the temperature needs of most refrigeration systems? This interactive online course has been created with the practical user of water based (hydronic) heating and cooling systems in mind. The goal is to introduce and understand one of the most basic elements in a hydronic cooling system: The cooling tower. Here we will convey the fundamentals of the means of heat rejection so that you can responsibly and confidently manage and operate buildings that utilize such systems. The objectives of this course are to understand open tower construction and operation; fluid cooler construction and operation; and to provide an overview of water treatment basics." | 0.5 | Fundamental |
| Hydronic Systems: Cooling Tower Operation | "Did you know water quality significantly affects the efficiency, maintenance requirements, and service life of evaporative cooling system equipment? Water treatment is important for efficient cooling tower operation. Water hardness, alkalinity, pH, TDS, and TSS all need to be measured and controlled to prevent scale, corrosion, and biological growth. This interactive online course cover the practical user of water based heating and cooling systems. The goal is to introduce and understand the operation of one of the most basic elements in a hydronic cooling system, the cooling tower." | 0.5 | Fundamental |
| Hydronic Systems: Architecture and Operation | "Hydronics is a means of heating and cooling using a fluid as the heat transfer medium. Historically, in large-scale commercial buildings, the Heating, Ventilating and Air-Conditioning (HVAC) systems utilize water-based hydronic designs.<br>In this interactive online course, we will describe the differences among the different types of hydronic systems. We will discuss expansion tanks and their role in a hydronic system. We will also discuss make-up water systems, air elimination, meters, and gauges." | 0.5 | Fundamental |
| Hydronic System Basics | "Hydronic heating and cooling systems move water around in order to transfer heat and cooling. Pump and heat exchangers are key components in hydronic systems. This interactive online course covers centrifugal pumps, including their construction and operation, as well as heat exchanger technology, construction, and operation." | 0.5 | Fundamental |
| Hydronic Systems: Pumps and Pumping Systems | "Hydronics is a means of heating and cooling using a fluid as the heat transfer medium. Hydronic systems include heating water systems, chilled water-cooling systems as well as some process and domestic water distribution systems.<br>Cooling may be provided by an air-cooled chiller or a water-cooled chiller, and heating is often provided using a hot water boiler. There are numerous pump types for hydronic systems that move fluids, and their construction and operation are dictated by the type of fluid they are moving. In this interactive online course, we will focus on rotodynamic pumps, and more specifically centrifugal pumps, since they are the most common in commercial building systems." | 0.5 | Fundamental |
| Motor Basics | Do you know the difference between a stator and a rotor? An electric motor is a rotating machine that converts electrical energy into mechanical energy. Electric motors operate by the interaction between the motor's magnetic field and an electric current in a wire winding to generate a force that results in shaft rotation. This course will address the two general types of electric motors by describing how they are constructed and the principles of operation of each type. | 0.5 | Fundamental |
| Intermediate Motors | To achieve long motor life, it is necessary to understand the different causes of motor failures, and how to operate and maintain motors to prevent these early failures. This interactive online course covers best practices for performing maintenance for the long-term reliability of AC and DC motors used in facilities and addresses the proper procedures for troubleshooting. Proper use of the tools and equipment required for motor maintenance such as winding testing, shaft alignment, and vibration monitoring/ analysis are also discussed. | 0.5 | Intermediate |
| Advanced Motors | This course on Advanced Motors addresses the more advanced maintenance practices to ensure electric motor long term reliability. An overview of various motor types, construction, and applications is discussed. The NEMA (National Electric Motor Association) mountings and dimensional data of different frame sizes of motors is presented to assist maintenance personnel in the selection and maintenance of facility electric motors. Lastly, energy efficient motors are reviewed to allow a better understanding of how their use can reduce operating costs. | 0.5 | Advanced |
| Plumbing Basics | "Confused about the difference between PVC and CPVC piping? Can you explain how copper pipe is swaged or sweated? How is PVC pipe joined or connected? This course looks at three types of plumbing piping; plastic, steel and copper. At the end of this training you will have general knowledge of the uses for plastic, steel and copper pipe. You will know what fluids each type of pipe can convey safety. Joining methods suitable for each type of pipe will be discussed. While the material presented in the training is not intended to lead directly to performing these joining techniques, you should be able to discuss the techniques and be able to inspect piping systems. With assistance and guidance from a skilled plumber, you should be able to start performing joining techniques, especially gluing of PVC pipe. Finally, you will also understand the potential hazards in each of the pipe joining methods." | 0.5 | Fundamental |
| Plumbing Maintenance | Did you know caulking around the toilet base and the floor can confine a water leak allowing it to enter the floor structure and damage it? Basic plumbing repair, maintenance procedures, and skills are required to properly maintain the fixtures used in public restrooms and commercial facilities. Some of the most common plumbing fixtures used in these buildings include; toilets, urinals, sinks, and the associated valves, traps, piping, and sealing components. This interactive online course covers the plumbing maintenance course covers the operation and maintenance of basic components used in water supply and drainage systems of households and commercial restrooms. The tools and techniques to perform these basic plumbing projects are presented. Procedures to perform basic repairs and replacement of various types of traps and valves are discussed and demonstrated using illustrations and photos. | 0.5 | Fundamental |
| Plumbing: Backflow Preventers | "Backflow is an often unknown or misunderstood phenomena. Even less understood is the purpose of backflow preventers and how they operate. Backflow is a condition in which water in a building or facility will flow backwards, creating a potential hazard to the domestic water system. Without a properly selected, installed, maintained and tested backflow device, hazard conditions resulting in illness or even death can occur. In this interactive online course, you will be introduced to what backflow is, under what conditions backflow can occur and the provisions to prevent backflow from occurring. Several key definitions will be presented and the operation of each type of backflow preventer is briefly explained. At the end of this training you will have a workable understanding of backflow devices and how to troubleshoot breakdowns." | 0.5 | Fundamental |

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# Commercial Facilities Maintenance (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Plumbing: Pipe Fitting | "Do you know the difference between a ""street ell"" and a ""dielectric union""? A thorough understanding of plumbing systems is not possible without knowledge of the importance of fittings. While fittings are small and seldom seen, their importance cannot be overstated. Fittings provide the accessories to complete a plumbing system. Couplings allow multiple pipe sections to be connected. Elbows provide the mechanism for pipes to change direction. Unions are essential for easily disassembling plumbing systems for maintenance and repair. Plastic, steel and copper water piping systems will be covered, for waste systems plastic and cast-iron piping will be discussed. The unique connection methods for each piping material will be reviewed. While there are dozens of fittings available to the plumber only the most common ones will be presented including, couplings, elbows, unions, nipples and reducers. The cause of galvanic corrosion will be examined along with the fitting that prevents this type of corrosion. At the conclusion of this training you will be able to describe the connection method of various pipe materials and the tools and techniques required. You will be able to identify and describe a "street ell" and a "dielectric union". You will become aware of troubling procedures for leaking unions. Finally, information on drain piping and the connection methods using "no-hub fittings will be presented." | 0.5 | Fundamental |
| Preventive Maintenance Basics | Did you know filter maitenance can prevent premature failure in HVAC systems? There are several routine preventive maintenance tasks required to maintain indoor air quality and keep a building's heating and cooling systems running efficiently. This interactive online course covers basic filter replacement best practices, v-belt replacement and alignment procedures, how to clean a coil, basic lubrication techniques, and daily rounds and readings and how to perform them. | 0.5 | Fundamental |
| Intermediate Maintenance Practices | Can you differentiate between an inner race and an outer race? What is Delta T? Heating and cooling systems require preventive maintenance to run efficiently. All motors and heat transfer equipment need to be kept clean, and bearings need to be properly lubricated. This interactive online course covers some common techniques for maintaining motors and electrical contacts, bearings, chillers, coils, and steam traps. | 0.5 | Intermediate |
| Reliability Centered Maintenance | Do you know the difference between preventative maintenance and predictive maintenance? There are different maintenance requirements for each asset. For example, some components fail consistently at a certain age, while others can be used indefinitely if properly maintained. Reliability-centered maintenance (RCM) involves establishing and maintaining an asset-specific maintenance plan to ensure that all equipment functions as designed, with good reliability and availability, and at the lowest possible cost. In this interactive online course, we will describe the principles of reliability-centered maintenance, differentiate between the different modes of maintenance, and describe analysis methods used in developing effective maintenance plans. | 0.5 | Fundamental |
| Refrigeration Basics | The refrigeration cycle is used in many different applications to transfer heat from one fluid to another. One common application is to provide cooling in HVAC systems. This interactive online course discusses the theory, equipment, and processes related to the vapor-compression refrigeration cycle. | 0.5 | Fundamental |
| Refrigerant Management | Did you know many refrigerants are harmful to human health and/or the environment? In air conditioning and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. This interactive online course covers how to execute a refrigerant management program to be compliant with AHJ requirements, identifies EPA Regulations, and describe record keeping requirements. | 0.5 | Fundamental |
| Refrigeration Components | "In the vapor-compression refrigeration cycle, a "refrigerant" alternately absorbs and rejects heat as it circulates through four components - an evaporator, compressor, condenser, and metering device - changing pressure, temperature, and phases along the way. This interactive online course discusses different types of refrigeration systems and their components. It also discusses metering devices, compressors, and non-condensable gases." | 0.5 | Fundamental |
| Refrigeration Theory | Did you know the most common method of refrigeration is the vapor-compression refrigeration cycle? Refrigeration systems are used in many different applications to transfer heat from fluid in one area to fluid in another area, where the term "fluid" can refer to a liquid or gas. This interactive online course covers the three laws of thermodynamics, the operation of the four components of a basic refrigeration system, thermal energy transfer, and the maintenance procedures to maintain equipment efficiency. | 0.5 | Fundamental |
| Water Treatment Basics | "Water treatment affects our everyday lives, from the water we drink to the sewage we flush, from the wash water we discharge to the cooling water used in manufacturing and in buildings. This interactive online course will cover the basics of water treatment in large buildings and is directed toward the building manager or technician.Operation of cooling towers and boilers will be discussed, along with control of scaling, fouling, pH and bacteria that can lead to Legionnaires' disease." | 0.5 | Fundamental |
| Intermediate Water Treatment | "Over 90 percent of Legionnaires' disease cases are caused by Legionella pneumophilia, which is a harmful bacteria sometimes found in cooling water systems. Water treatment affects all of our everyday lives, from the water we drink to the sewage we flush, from the wash water we discharge to the cooling water used in manufacturing and in buildings. This interactive online course will cover intermediate water treatment in large buildings, and is directed toward the building manager or technician. Operation and maintenance of cooling towers and boilers will be discussed, along with control of water chemistry, dissolved oxygen, solids and bacteria that can lead to scaling, corrosion and fouling of water treatment systems, along with exposure to Legionnaires' disease." | 0.5 | Intermediate |
| Work Order Management: CMMS Basics | Did you know a CMMS system can be configured to notify management via smartphone or email, if there is an equipment breakdown at any time of the day or night? Computerized Maintenance Management Systems (CMMS) have been around for many years. They can offer many advantages when an organization is trying to systematize and standardize the maintenance activities related to that organization's assets. But that's not all a properly designed and utilized CMMS can do. This interactive online course covers the benefits of an effective CMMS, work types related to maintenance, reactive and breakdown maintenance, and the purpose of a problem code and a resolution code. | 0.5 | Fundamental |
| Work Order Management: Workflow Management | Did you know breakdowns and unplanned maintenance can cost as much as ten times the amount than that of a good preventive maintenance program would cost? Utilizing workflow management within a Computerized Maintenance Management System (CMMS), will result in higher department efficiency and better financial management. This interactive online course covers how to manage the maintenance workflow within an organization, utilizing an efficient CMMS. | 0.5 | Fundamental |
| HVACR Type I Certification | Type I certification requires that technicians know how to safely and properly evacuate refrigerants from "small appliances" containing 5 pounds or less of refrigerant using the appliance's compressor, system pressure, or self-contained recovery equipment. This interactive online course will cover these evacuation procedures, as well as how to deal with contaminants in a system and safety considerations. | 0.5 | Intermediate |
| Refrigerant Safety and Handling | In air conditioning (AC) and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. Refrigerants must be handled and used carefully as many of them present hazards to the environment and human health. This interactive online course discusses safe methods of working with refrigerants and refrigeration systems. | 0.5 | Intermediate |
| Computer Room Air Conditioning (CRAC) Systems: Design and Operation | "This course is intended to be a primer to help any system operator or maintenance person to better understand some of the aspects and sometimes subtle nuances of computer room A/C systems, as well as the ancillary equipment and systems which normally support the A/C system. This online interactive course is by no means an in-depth study of computer room A/C systems, but strictly an introduction into the specialized world and nature of computer room A/C systems. By studying the fundamental information presented herein, you will gain enough information to be able to assist in keeping your company's computers and servers fully, and reliably, operational." | 0.5 | Intermediate |

| Commercial Facilities Maintenance (Continued) | | | |
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| Title | Description | Hours | Level |
| HVACR Type II Certification | Did you know HVAC and Refrigeration technicians who maintain, service, repair, or dispose of medium, high, and very high pressure appliances containing more than five pounds of a controlled refrigerant must pass the EPA's Section 608 Type II certification exam? Type II certification requires that technicians understand several topics related to these systems, including leak detection, leak repair, evacuation requirements, recovery techniques, refrigeration, and safety. This interactive online course will cover the appliances included in the EPA Section 608 Type II certification exam, explain the techniques that are used to recover refrigerants, list evacuation requirements, and cover safety considerations for working with or around refrigerants, recovery equipment, and HVAC and Refrigeration systems | 0.5 | Intermediate |
| HVACR Type III Certification | Did you know Type III appliances differ from Type II appliances in that they operate in a vacuum on their low-pressure sides and sometimes on their high-pressure sides, which affects what happens when they develop a leak? When a Type III appliance develops a leak in a location that is under vacuum, air and/or moisture leaks in. In this interactive online course, we will cover the EPA 608 Type III certification exam, the techniques that are used to recover refrigerant, evacuation requirements and safety considerations for working with or around refrigerants. | 0.5 | Intermediate |

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# Project Management

| Title | Description | Hours | Level |
|---|---|---|---|
| Managing Generation X | You have probably heard the term "Generation X" used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers. | 1 | Intermediate |
| Project Management Essentials | Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations. | 2 | Fundamental |
| Business Disputes: Alternative Resolutions to Litigation | "Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional.<br>This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system.<br>In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation." | 1 | Advanced |
| Construction Project Management: Construction Practices and Systematic Project Management | "In this course, we're going to present and discuss the management of field construction projects. We'll also cover management techniques for controlling cost, time, resources, and project finance during the construction process. Emphasis is placed on practical and applied procedures that have been proven effective.<br>Effective management of a project also requires a considerable background of general knowledge about the construction industry. This interactive online course will familiarize you with certain fundamentals of construction practice. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved." | 2 | Intermediate |
| Construction Project Management: Project Estimating | If you were given the task of estimating the future expense of a unit of production in a manufacturing facility you could do it with considerable precision. A plant offers standard conditions, close controls, and consistent processes. Construction estimating, on the other hand, lacks standardization, presents challenging site locations and project conditions. Nevertheless, a skilled and experienced estimator, using cost accounting information gathered from similar previous construction projects, can do a reasonable job of predicting construction costs. The character or location of a project can present unique problems, but there are usually some basic principles and precedents that apply. This interactive online course will walk you through the steps involved in estimating construction projects starting with an overview of cost-estimating procedures and how the final project budget is reached. Then, you'll learn how to develop monthly progress estimates and change order estimates. Finally, you'll become familiar with details about specific estimates that you'll typically prepare. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 1 | Intermediate |
| Construction Project Management: Project Planning | "Project planning is central to project management and takes place at all stages. The plan is typically very simple in concept, though it may be quite complex in execution. Additional participants in the process, such as designers, contractors, specialty contractors, and material suppliers also plan for a project. Their plans often include much greater detail but are limited in scope in order to execute their part of the project. Project planning is essential to any task, whether it be management oriented or focused on execution in the field. The product of the plan is often a schedule. In this course, you will see that the planning process, resulting in the project schedule, is what ties all of the elements of project management together. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved." | 1 | Intermediate |
| Construction Project Management: Project Scheduling Concepts | How would you account for weather delays in a construction project schedule? What about the availability of labor and equipment? How much time should you allow for each subcontractor to complete their work? In this interactive online course, we'll answer those questions. You'll learn how to determine the duration for individual activities and the calculation process for project times. Through examples, you'll discover new terminology for scheduling, including early and late start and finish, float, critical activities, and lag time. You'll then convert the project days-based schedule into calendar dates. We'll also discuss the pros and cons of the bar chart in construction project scheduling and how computer applications can save time and provide an array of project data in various forms. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 2 | Intermediate |
| Construction Project Management: Production Planning | Did you know production planning begins well before the project is mobilized in the field and continues throughout the project until all field operations are closed out? Production planning is concerned with how project activities are going to be carried out. It establishes the methods to be used, the assignment of personnel, the movement of material to the workface, and the process of assembling the pieces. This interactive online course considers all resources that contribute to the job, including personnel, materials, construction equipment, the site, the environment, and anything else that might affect the job. It will also cover the lean construction process and BIM, which is beginning to change the way construction is managed and organized. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 1 | Intermediate |
| Construction Project Management: Managing Time | Did you know the schedule plays a central role in construction project management? Developing an initial schedule is a powerful tool that you can use in managing various aspects of a project, including time, resources, production, and cost. This interactive online course concentrates on using the schedule to manage the time required to execute the construction processes. It begins by considering the project as a whole, determining how to shorten the overall project schedule, and looking at the cost trade-offs of expediting the project. It then focuses on current or upcoming parts of the project with the objective of managing the project components more effectively. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 1 | Intermediate |
| Construction Project Management: Resource Management | "Much of the job of a project manager, as well as the job of a field supervisor, focuses on the efficient investment of resources to achieve the project objectives. A resource can be considered anything that adds value to the project. When we talk of resources in the context of construction, we typically think of manpower, equipment, and materials. In addition to what we normally understand manpower to mean—that is, craft workers who actually do the work on the project—there are many other people who add value to the project. It is the job of the project manager to manage all of these resources in support of efficient execution of the project. This interactive, online course will focus on methods and procedures involved with the management of the three primary resources of manpower, equipment, and materials." | 1 | Intermediate |
| Construction Project Management: Project Scheduling Applications | In previous courses in this series, we focused more on tactical use of the schedule to manage specific components of the project, such as production, time, resources, and costs. In this interactive, online course, we'll consider strategic scheduling applications as they relate to the overall project, including legal aspects of the schedule. This course considers the role of the schedule and the variety of operational schedules available to the project manager. It also discusses the ways scheduling information can be organized and presented. | 2 | Intermediate |

# Project Management (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Construction Project Management: Project Cost System | Did you know that managing cost for a construction project is equally important as managing time? It allows you to make decisions that will enable you to maximize resources. This interactive online course covers the various elements of the project cost cycle, starting with the estimate and moving through the project to collection of actual unit costs to be incorporated into the company cost database for use in starting the cycle again for a future project. We will also review the relationship between time and money. Although the details of a specific cost-control system vary substantially from one construction firm to another, the ensuing treatment can be regarded as being reasonably typical of current practice within the construction industry. | 2 | Intermediate |
| Construction Project Management: Project Financial Management | Did you know the project manager bears the overall responsibility for financial management of the work on a construction project? This includes carrying out such fiscal duties as may be imposed by the construction contract and implementing appropriate monetary procedures according to the dictates of good business practice. Project financial management can involve a broad range of responsibilities. This interactive online course covers project cost breakdowns, the forecasted schedule of progress payments, preparation or approval of periodic pay estimates, and documentation required for final payment. You will also learn how to monitor project cash requirements during the contract period and maintain complete and detailed daily records of the project. | 1 | Intermediate |
| Construction Project Management: Project Coordination | "Progress reporting provides the opportunity to analyze the current status of the project. Often, this will lead to rescheduling and corrective action to bring the project back within specified time parameters. This cycle of planning and executing activities, measuring and reporting progress, revising the plan based on current status, and updating the schedule is continued repetitively throughout the project. In this interactive, online course, we'll focus on managing the ongoing project. We begin by looking at detailed schedules used by the field supervisor to plan crew work on specific activities in the near term. Then we move on to measurement and reporting of progress." | 2 | Intermediate |
| Financial Management 6 & 7: Financial Controls, Monitoring & Project Budgeting | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Pricing as a Professional | This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| A Manager's Guide to Performance Appraisals | This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for "Goal Statements", "Descriptions and Evaluation of Competencies", "Self Assessment" and more. There is a test included at the end of this course. | 1 | Intermediate |
| Financial Management 1: Negotiating Contracts | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end.This is the first chapter of the "Financial Management for the A/E/C Firm" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Financial Management 2 & 3: Pricing for Profits, Generating Cash and Getting Paid | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly.<br>This is the second and third chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 2 | Intermediate |
| Financial Management 4: Accounting & Cash | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Financial Management 5: Strategic Planning & Budgeting | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Financial Management 8: Controlling Labor Costs | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |

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# Project Management (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Financial Management 9: Purchasing | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm.<br>This is the ninth and final chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Excel for Project Management | "Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information. A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan." | 1 | Fundamental |
| Writing in Plain Language | "Write emails and documents that are read, understood, and acted on. We are overwhelmed with information today—in both our personal and business lives. Sometimes it's better to get straight to the point, in a way that doesn't waste your reader's time yet doesn't compromise your professionalism either. This course teaches you how to use plain language to address your reader's needs. What do they really need to know? What do you want them to do? We'll teach you how to think about your reader's purpose and to write for them so they get the message and your writing does its job." | 1.25 | Fundamental |
| Management 101: 02-Leading and Communicating as a Manager | Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting. | 1 | Intermediate |
| Management 101: 03-Making an Impact as a Manager | Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact. | 1 | Intermediate |
| Management 101: 04-Taking Control as a Manager | Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department. | 1 | Intermediate |
| Advanced Management Skills | In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand. | 5 | Intermediate |
| Performance Management: 02-Identifying Performance Problems and Causes | Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. You'll also explore the role that personality plays in performance problems. You'll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 03-Feedback and Counseling | The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 04-Effectively Disciplining Problem Performance | Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. You'll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 01-Project Management Overview | Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations | In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization. | 1.5 | Intermediate |

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# Project Management (Continued)

| Title | Description | Hours | Level |
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| PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups | Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 13-Estimating & Budgeting Project Costs | Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling | In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure | Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan | A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope | One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope | A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities | Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule | Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration | One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 12-Controlling Costs | Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations. | 1 | Intermediate |

# Project Management (Continued)

| Title | Description | Hours | Level |
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| PMBOK® Guide - Sixth Edition: 14-Project Quality Planning | Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control | A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources | The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources | As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications | Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 2 | Intermediate |
| PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan | One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks | In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis | All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 22-Risk Management Planning | Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |

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# Project Management (Continued)

| Title | Description | Hours | Level |
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| PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control | Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project | This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bitter conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project | As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning | Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication | Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1 | Intermediate |
| Agile Project Management: 01 - Agile Series Overview | What comes to your mind when you think Agile? You're probably thinking about the ability to move quickly and easily, and you would be right. Now apply that definition in the context of project management. An Agile project manager is someone who can move quickly, adapt to change, and make smart adjustments on the fly. This courses primary purpose is to increase your knowledge of the principles and processes involved in the Agile method of project management as organized and suggested by the Project Management Institute. We will spend a lot of time discussing what you need to know and the knowledge required or at least expected to be known by most agile practitioners. The courses in this series are loosely based on the domains of: Agile principles and mindset, Value driven delivery, Stakeholder engagement, Boosting team performance practices, Adaptive planning, Problem detection and resolution, Continuous improvement. Upon completion of this series you will be well versed in the methodologies and principles of Agile project management and effectively prepared to sit for the PMI-ACP exam from PMI. | 0.25 | Intermediate |
| Agile Project Management: 02 - Traditional vs. Agile Project Management | The idea of performing project management work in an agile way did not magically appear in the last couple of years. But, what is an agile project management? This course examines what it is and the difference between agile and traditional project management. | 0.75 | Intermediate |
| Agile Project Management: 03 - Agile Manifesto Principles 1 - 6 | Since the Agile Manifesto serves as the guiding principle of the entire agile project management collective, it also holds a prominent part in the Project Management Institute-Agile Certified Practitioner exam. In this course, we will explore the first six principles of the manifesto in depth. | 0.75 | Intermediate |
| Agile Project Management: 04 - Agile Manifesto Principles 7-12 | At the root of the modern structure of agile project management is the Agile Manifesto, and it should be used as a guide to the philosophy of the agile project management approach. This course focuses on the last six agile principles as well as the Declaration of Interdependence. | 0.5 | Intermediate |
| Agile Project Management: 05 - Value Driven Project Management | To select the best project to work on, you must assess what is to be gained from its efforts and at what costs. Benefits are best placed in the perspective of the customer or business value. This course covers value-driven development. In this, we discuss how to determine the amount of time and effort to spend on a project. It also discusses how to determine when to expend time and resources on any one or more features, functions, procedures, parts, and/or elements of that project over others. This course makes clear what the value is and how utilizing agile project management approaches can deliver to that value. | 1.25 | Intermediate |

# Project Management (Continued)

| Title | Description | Hours | Level |
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| Agile Project Management: 06 - Setting Vision and Prioritization in Agile Projects | Agile projects are selected based on certain aspects and considerations. Prioritization and planning is where most of the effort and time is spent in agile project management. This course delves deeper into prioritization and risk management in agile project management. We expand on the prioritization of the features and functions of our selected projects, building out our products vision and business case for development, and laying the foundation for our products plan of fulfillment. Also, greater detail and care is spent on the tools, techniques, and other concepts surrounding the planning at all the various levels of an agile project. | 0.75 | Intermediate |
| Agile Project Management: 07 - Scrum and Extreme Programming (XP) Methodologies | This course is about the agile methods and frameworks of Scrum and Extreme Programming. These are, arguably, the two most well known of the agile project management methodologies. In this course, we cover the basics, principles, and practices of both methods. | 1.5 | Intermediate |
| Agile Project Management: 08 - Other Less-Common Agile Methodologies | In this course, we explore some of the lesser known agile project management approaches beyond the popular ones of scrum and extreme programming. Their lack in popularity right now does not mean they will always be lesser known. They may become the go to approach in the future if certain industries or subsets of the agile community adopt them more fully and evangelize their exalts. | 1 | Intermediate |
| Agile Project Management: 09 - Planning Agile Projects | Planning in agile projects differs from waterfall projects or other more traditional projects in the aspect of adapting to the needs and expectations of the stakeholders and the product development in a flexible manner. This encourages changes and course corrections as often as necessary, and makes planning essential to a projects success. This course examines how to best plan an agile project, the differences between the various levels of project planning, and useful tools to aid in the planning. | 1.25 | Intermediate |
| Agile Project Management: 10 - Estimating Agile Projects | Estimating the work, effort, and time activities will take during a project is a very challenging exercise. However, its also a very important and crucial piece to any project management. How estimation works in agile projects is slightly different than in traditional projects or daily operations. The circumstances and variables are more varied in agile projects than in traditional project needs. This course aims to explore those differences, the strategies at play in agile estimation, and the various tools and techniques any agile practitioner whether that be an agile project manager, agile coach, ScrumMaster, or agile development team member should be aware of. | 1.25 | Intermediate |
| Agile Project Management: 11 - Implementing Agile Projects | A good agile project manager should be knowledgeable about the various tools and techniques of the agile project management trade. They should also be versatile enough to know when to apply the documented tools and techniques in their literal or highly structured manners and when to bend or accommodate them to the requests of the agile team. This course is aimed for those who may be taking on the role of agile project manager, agile coach, agile practitioner, agile mentor, or ScrumMaster. We discuss the basics of each type of agile manager, their similarities and differences, how to use the tools and techniques available, and what role agile management has in an agile project. | 1 | Intermediate |
| Agile Project Management: 12 - Team Formation and Creating an Agile Environment | There is a lot to learn and be aware of when working with agile project teams. Agile project team formation and empowerment requires setting up self-organizing and self-empowered groups of skilled and supported individuals. This course focuses on how teams are most effectively formed, how they are supported, and how those teams can more effectively work together and be continuously successful. | 1.5 | Intermediate |
| Agile Project Management: 13 - Communication in Agile Projects | There are many challenges and potential pitfalls of communication throughout the duration of a project. Communication is absolutely critical to any team activity, and agile project management is a team activity. The success and failure of an agile project can certainly rest on the proper or improper use of communication. This course covers the many aspects of communication in an agile project. The general goals of this course are being aware of the various modes of communication, the importance of communication in an agile project, and how to best apply the appropriate tools and techniques surrounding communication to best support your project. | 1.5 | Intermediate |
| Agile Project Management: 14 - Increasing Agile Stakeholder Engagement | Project stakeholders are all those affected by the project, not just those who fund the project or those we are building the project for. The product owner is a stakeholder, but he or she is not the one using the product. A bigger set of stakeholders are the end users. Even beyond that, there are many other project stakeholders. This course covers who the stakeholders are, how to consider their needs as the project progresses, and several tools and techniques that help in incorporating the stakeholders needs and wants. | 1 | Intermediate |
| Agile Project Management: 15 - Soft Skills and Servant Leadership in Agile Projects | An agile project manager ensures the project and its components can run. He or she ensures that everything that is needed is taken care of and puts the agile project management framework and processes in place. In essence, a project manager leads by example. In this course, we explore how a good agile project manager utilizes soft skills and leadership in order to inspire team members, keep the lines of communication open, and deliver an excellent product. | 1 | Intermediate |
| Agile Project Management: 16 - Testing and Risk Management in Agile Projects | This course focuses on the process of managing potential threats and other forms of risks throughout the agile projects lifecycle. We cover how to test and validate in order to gather information to improve and adapt the processes of agile project management. We continue talking about the power of adaptive planning in agile projects and discuss how to optimize value delivery by selecting and tailoring the teams processes based on experiences and project feedback. | 1 | Intermediate |

# Project Management (Continued)

| Title | Description | Hours | Level |
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| Agile Project Management: 17 - Problem Detection, Metrics, and Resolution in Agile Projects | There are always going to be problems in agile projects. Some will be major and some will be incredibly minor. Being able to detect, forecast, and address the problems especially any small problems before they become big is key to successful agile project management and practice. In this course, we concentrate on the needs and methods around the detection of problems, errors, issues, and other things deemed outside our acceptable realm of control. We also examine a few of the common tools, measurements, techniques, and other diagnostics that support the teams efforts to detect and resolve problems within the project. | 1 | Intermediate |
| Agile Project Management: 18 - Quality and Earned Value Management in Agile Projects | Agile project quality is a discipline that is built in and incorporated in all that is done from considering, to planning, to executing, to testing, to delivering, and every minute in between. Quality is a mindset and a practice throughout the agile project lifecycle. In this course, we concentrate on agile project quality and the role it plays in the gains or value. As we talk about the standards and the expected levels of quality of the products, we discuss the skills needed in order to measure quality. | 1.25 | Intermediate |
| Agile Project Management: 19 - Continuous Improvement for Management and Project Agility | No agile project is perfect. No person on an agile team is perfect. There is always room for improvement and growth. This course is about the constant striving for improvement. In this course, we explore the various methods and concepts surrounding the need and ability to continually improve an agile project, ourselves, our teams, our culture, our organization, our agile project management, and other areas, whether directly or indirectly. | 1 | Intermediate |
| Agile Project Management: 20 - PMI Code of Conduct in Agile Management | The discipline of agile project management does not have a particular governing body, standardization, or a certain entity that is the gold standard for certification in this field. The Project Management Institute has made tremendous inroads in adding some formality in this regard by collecting the best practices, concepts, approaches, and terms. This final course in the Agile series discusses the PMI Code of Conduct, which is essentially a list of values that should be found within any project. | 0.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline | Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam. | 1 | Advanced |
| PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020 | "Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification. " | 1 | Advanced |
| Understanding Business Ethics | In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company. | 2 | Intermediate |
| Effective Delegation | LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them. | 3 | Intermediate |
| Negativity in the Workplace | In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome. | 4 | Intermediate |
| Coaching with Confidence | LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be for themselves, and for their teams. | 6.5 | Intermediate |
| Making Humor Work at Work | Being able to laugh and have fun in the workplace is a benefit to employees, their supervisors, and their companies. In addition to being just plain old fun, laughter is good for business. Studies show that employees who love to laugh are more creative and more productive. They make better decisions. And they get along better with their co-workers. LearnSmart's Making Humor Work at Work video training course shows workers how to problem-solve, defuse resistance to change, disarm anger, and improve and increase memory through the effective use of humor on the job. | 1 | Intermediate |

VectorSolutions™

# Project Management (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Appraising Performance | Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment. | 3.5 | Intermediate |
| Facilitating Meetings and Groups | LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals. | 7 | Intermediate |
| Business Communication Fundamentals | In the business world, effective communication is an essential part of getting things done specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them what to include and what not to include for that's what dictates how well we communicate. | 0.75 | Intermediate |
| Better Business Writing | Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world. | 0.75 | Intermediate |
| Email Etiquette | Email has long since replaced postal "snail" mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication. | 2.5 | Intermediate |
| Managing Contractors and Temporary Employees | In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department. | 3.25 | Intermediate |
| Managing Technical Professionals | In LearnSmart's Managing Technical Professionals video training, managers are given a thorough overview of how to effectively lead technical professionals. You will cover material on the high-tech business environment to how to establish and maintain credibility. You will find discussions on how to keep technical professionals motivated. And how, when inspired, these dedicated individuals will help support a companies strategic objectives. But to do this, they need assistance from managers in identifying their career goals. Overall, you'll learn how to assist your organization and the technical professionals you manage in reaching and exceeding their goals. | 2.75 | Intermediate |
| Performance Management: 01-Preventing Performance Problems | The most effective method for managing performance problems is preventing them. As a manager, its important that you have the knowledge and tools used to prevent performance problems. To start out you'll concentrate on how to successfully hire people that will contribute to your organizations skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. You'll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series. | 1 | Intermediate |
| Rewarding Peak Performers | Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the businesses bottom line. | 1.5 | Intermediate |
| Successful Negotiation | One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, you'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life. | 1 | Intermediate |
| Management 101: 01-Introduction to Management | You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resistors to change. Overall, you will be better equipped as a new manager. | 1 | Intermediate |
| Successful Termination | Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee. | 1.25 | Intermediate |
| ADA Compliance in Business | The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities. | 1.25 | Intermediate |
| Successful Hiring | Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview. | 1.25 | Intermediate |
| The Change Process | In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes.This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours. | 2.5 | Intermediate |

# Project Management (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Multigeneration Management: 01-Workforce Generations | At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace. | 1 | Intermediate |
| Business Execution: 01-Execution Strategies | Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go. | 1.5 | Intermediate |
| Basics of Leadership: 01-Leadership Challenges | Leaders in the 21st century must accommodate themselves to todays rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 02-Changes in Corporate Culture | A companies organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 03-Keeping Employees Energized | Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3. | 1 | Intermediate |
| Basics of Leadership: 04-Knowledge Management | Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in todays workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 05-Elements of Change in Business | Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why its essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 06-Leadership Dynamics | Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series. | 1 | Intermediate |
| Fundamentals of Business Crisis Management | In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan. | 2.5 | Intermediate |
| IT Pro to Manager: 01-Managing the Development of Technical Professionals | In LearnSmart's Managing the Development for Technical Professionals video training, technical professionals will learn the skills to survive and thrive in the workplace. Students will also gain a better understanding of what it takes to develop organizational skills, such as time management, performance management, and stress management. | 1 | Intermediate |
| IT Pro to Manager: 02-Successful Communication and Process Management Skills | In LearnSmart's Successful Communication and Process Management Skills video training, new and future managers will gain a clear understand of just how important clear lines of communication are -- with both employees and superiors. In addition, students will see how easy it can be to become overwhelmed, with so much to do in what never seems like enough time. By concentrating on effective time management, these individuals can avoid much of the stress and pressure that comes with a new position. | 1 | Intermediate |
| IT Pro to Manager: 03-Developing Leadership and Transitioning into Management | In LearnSmart's Developing Leadership and Transitioning into Management video training, you will learn that management isn't always so much about leading, as it is about pointing the way. It is your duty to point the way by instructing, giving feedback and sharing your experience. This course looks at leadership roles, styles and behaviors, showing how to build the strengths of your team and overcome personality differences, as well as conflict. | 1 | Intermediate |
| Effective Presentation Skills | In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation. | 1 | Intermediate |

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# Project Management (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Multigeneration Management: 02-Leading Silents and Boomers | For todays managers, it is essential to understand the unique needs and work habits of the companies elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to Americas workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generation series, which contains courses dedicated to understanding each generations different behaviors, attitudes, and priorities. | 1.5 | Intermediate |
| Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next) | Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrows experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series. | 1.25 | Intermediate |
| Multigeneration Management: 04-Cross-Generational Teams | Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the fourth course. | 1 | Intermediate |
| Multigeneration Management: 05-Developing Generations | When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the final course. | 1 | Intermediate |
| Business Execution: 02-Inspiring Workplace Excellence | When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees. | 1 | Intermediate |
| Business Execution: 03-Turning Ideas into Actions | There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure. | 1.5 | Intermediate |
| Advanced Leadership Bundle | You are a great Project Manager but what about a People Manager? Learn how to become a more confident manager. By taking these courses, you will learn the qualities of an effective team and the techniques that will help you manage that team to success. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation. Talent Triangle hours: 24 LEADERSHIP/ 1.75 STRATEGIC Course: Multigeneration Management: 01-Workforce Generations, Multigeneration Management: 02-Leading Silents and Boomers, Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next), Multigeneration Management: 04-Cross-Generational Teams, Multigeneration Management: 05-Developing Generations, Management 101: 01-Introduction to Management, Management 101: 02-Leading and Communicating as a Manager, Management 101: 03-Making an Impact as a Manager, Management 101: 04-Taking Control as a Manager, Performance Management: 01-Preventing Performance Problems, Performance Management: 02-Identifying Performance Problems and Causes, Performance Management: 03-Feedback and Counseling, Performance Management: 04-Effectively Disciplining Problem Performance, Advanced Management Skills, Rewarding Peak Performers, The Change Process, Appraising Performance | 25.75 | Intermediate |
| Basics of Leadership Bundle | This 6 course series will equip the new leader with a high level overview of the most important topic facing leadership today: corporate culture, motivation of employees, knowledge management, and how to thrive in constant change. Talent triangle hours: 6 LEADERSHIP Courses: Basics of Leadership: 01-Leadership Challenges, Basics of Leadership: 02-Changes in Corporate Culture, Basics of Leadership: 03-Keeping Employees Energized, Basics of Leadership: 04-Knowledge ManagementBasics of Leadership: 05-Elements of Change in Business, Basics of Leadership: 06-Leadership Dynamics | 6 | Intermediate |
| From AEC Project Manager to Principal Bundle | This series will tutor the newly promoted AEC PM (Architect, Engineer, Contractor) in acquiring new skills, including strategy, team development, financial management, and more. The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, and great expertise within each area. The leader who has excelled while dealing directly with projects and design issues must now learn to deal indirectly with people issues and leadership challenges. Talent triangle hours: 5 Leadership From Project Manager to Principal 1: Foundations of Management From Project Manager to Principal 2: Marketing Your Services From Project Manager to Principal 3: Negotiation Outcomes & StrategiesFrom Project Manager to Principal 4 & 5: Manpower & Quality From Project Manager to Principal 6: Financial Management | 5 | Intermediate |
| From IT Professional to IT Manager Bundle | In this short series, technical professionals will learn the skills to survive and thrive in the workplace. Students will also gain a better understanding of what it takes to develop organizational skills, such as time management, performance management, and stress management. Talent triangle hours: 3 Leadership IT Pro to Manager: 01-Managing the Development of Technical Professionals IT Pro to Manager: 02-Successful Communication and Process Management Skills IT Pro to Manager: 03-Developing Leadership and Transitioning into Management | 3 | Intermediate |
| Financial Management Bundle | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This series enables the AEC Project Manager (Architect, Engineer, Contractor) to better protect their financial security. Talent triangle hours: 8 StrategicFinancial Management 1: Negotiating Contracts Financial Management 2 & 3: Pricing for Profits, Generating Cash and Getting Paid Financial Management 4: Accounting & Cash Financial Management 5: Strategic Planning & Budgeting Financial Management 6 & 7: Financial Controls, Monitoring & Project BudgetingFinancial Management 8: Controlling Labor Costs Financial Management 9: Purchasing | 8 | Intermediate |
| Smart Management: Getting the Most out of a Multigenerational Workforce | Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them "tick".This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just "well" but "with excellence". | 1 | Intermediate |

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# Project Management (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Business Writing: Writing Effective Emails | "In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language." | 0.5 | Intermediate |
| Smart Management: Methods for Motivating and Mentoring Your Team | Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company. | 2 | Intermediate |
| Smart Management: Business Essentials | "You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind." | 2 | Intermediate |
| Smart Management: Coaching for Better Performance | There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as "The Boss" and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a "coach." Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan. | 1 | Intermediate |
| Smart Management: How to Handle Workplace Challenges | "Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles." | 1 | Intermediate |
| Smart Management: Key Skills for Managing & Coaching Your Team | Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, "Take Care of Yourself." | 0.5 | Intermediate |
| Smart Management: SMART Goals - Setting Effective Targets for Success | Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success. | 1 | Intermediate |
| Smart Management: The Art & Science of Delegation | "Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tell us when others can do needed activities, faster, cheaper, and better than we can ourselves. The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects." | 1 | Intermediate |
| Smart Management: Data Security | Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information. | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Customer Service | Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position. | 1 | Intermediate |

| Project Management (Continued) | | | |
|---|---|---|---|
| **Title** | **Description** | **Hours** | **Level** |
| **Smart Management: Successfully Transitioning from Team Member to Manager** | "Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader. During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed." | 1 | Intermediate |

# Facilities Management & Maintenance Complete

| Title | Description | Hours | Level |
|---|---|---|---|
| 2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning | "Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Building Code Essentials – Fire Safety | "Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council." | 1 | Fundamental |
| 2015 International Building Code Essentials – Health Safety | "For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council." | 1 | Fundamental |
| 2015 International Building Code Essentials – Life Safety | "Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Building Code Essentials – Structural Safety | "Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council. " | 1 | Fundamental |
| 2015 International Fire Code Essentials – General Safety Precautions | "How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Fire Code Essentials – Hazardous Materials | "Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Fire Code Essentials – Site and Building Services | "Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teachers you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council." | 2 | Fundamental |
| 2015 International Fire Code Essentials – Special Processes and Building Uses | "Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teachers you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council. " | 2 | Fundamental |
| 2015 International Fire Code® Essentials – Fire/ Life Safety Systems and Features | "Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®." | 2 | Fundamental |
| 2015 International Fire Code®: Significant Changes | "Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®." | 2 | Fundamental |
| 2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes | "Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council. " | 1 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| 2017 NEC Changes: Communications Systems | "Proper wiring of electrical systems is essential to protecting life and property. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables." | 1 | Intermediate |
| 2017 NEC Changes: Special Equipment | Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. | 1 | Intermediate |
| 2017 NEC Changes: A New Process and Five New Articles | The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. | 1 | Intermediate |
| 2017 NEC Changes: Appliances and Equipment | Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. | 1 | Intermediate |
| 2017 NEC Changes: Branch Circuit, Feeder and Services | Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well. | 2 | Intermediate |
| 2017 NEC Changes: Conductors and Wiring Methods | Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. We will discuss the listing requirements in the Chapter 3.6 section and the .30 sections for securing and supporting throughout chapter 3. We will also examine 336.10 Uses Permitted for (TC cable) or tray cable and 338.10(B)(4)(a) Uses Permitted for service entrance cable or (SE cable), and review 344.14 Dissimilar Metals in Rigid Metal Conduit Systems (RMC). Other topics covered in the course include 350.28 Trimming of Liquidtight Flexible Metal Conduit (LFMC), 358.10 Uses Permitted for EMT. 376.20 Conductors in Parallel for Metal Wireways, and 392.22(A), which covers the number of conductors in (cable trays). | 1 | Intermediate |
| 2017 NEC Changes: Enclosures and Boxes | Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. | 1 | Intermediate |
| 2017 NEC Changes: General Requirements | Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 1 | Intermediate |
| 2017 NEC Changes: Hazardous Locations | Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements. | 1 | Intermediate |
| 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding | Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. In this interactive, online course, we will discuss notable changes to the 2017 NEC. Such changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. | 1 | Intermediate |
| 2017 NEC Changes: Receptacles and Switches | How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. | 1 | Intermediate |
| 2017 NEC Changes: Special Occupancies | "The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards." | 1 | Intermediate |
| 2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy | "This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8." | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| 2020 NEC® Changes: Branch Circuit GFCI Protection | Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210. | 1 | Intermediate |
| 2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures | "This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units." | 1 | Intermediate |
| 2020 NEC® Changes: Devices, Lighting, and Gear | "This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting." | 1 | Intermediate |
| 2020 NEC® Changes: Equipment for General Use | "This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries." | 1 | Intermediate |
| 2020 NEC® Changes: Focus on Wiring Methods | This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. | 1 | Intermediate |
| 2020 NEC® Changes: General Requirements | The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space. | 1 | Intermediate |
| 2020 NEC® Changes: Overvoltage and Grounding & Bonding | This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. | 1 | Intermediate |
| 2020 NEC® Changes: Process Review and Updated Articles | "This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems." | 1 | Intermediate |
| 2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems | Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources. | 2 | Intermediate |
| 2020 NEC® Changes: Special Equipment | Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on underfloor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring. | 1 | Intermediate |
| 2020 NEC® Changes: Special Occupancies | The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations. | 1 | Intermediate |
| 2020 NEC® Changes: Wiring and Protection | Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection. | 2 | Intermediate |
| 3-way Communication | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional 3-way Communication human performance tool and discover its guiding purpose of clear, concise communication and its impact on performance in the workplace.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| 8-Hour HAZWOPER Refresher | This series of courses meets the 8-hour OSHA HAZWOPER annual refresher training requirement for workers at hazardous waste sites. While this set of courses is designed to meet OSHA's HAZWOPER annual refresher requirements, your employer must provide any other site-specific and job-specific training deemed necessary. This set of courses does NOT cover:Incident Review Requirements - To meet OSHA's HAZWOPER incident review requirement, your employer must provide incident review training and any other site-specific and job-specific training deemed necessary by your employer.Hands-On Training - Your employer is expected to provide hands-on training, have a qualified trainer available for questions, and determine what additional training is needed to satisfy your training program requirements. | 8 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| A Leaders Guide to Decision Making | Sometimes choices are tough. We second guess our decisions or stall making one to start with. In this Effective Leaders Guide for making decisions, learn the steps to make more strategic choices and to feel comfortable with the decisions you have made. Using application exercises and a rich multimedia process you will soon be more comfortable in your own skin and more effective with your choices by applying what you have learned in this foundational course. | 0.5 | Intermediate |
| A Manager's Guide to Performance Appraisals | This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for "Goal Statements", "Descriptions and Evaluation of Competencies", "Self Assessment" and more. There is a test included at the end of this course. | 1 | Intermediate |
| Above ground Storage Tank Requirements (AST) | Any storage container of at least 55 gallons that is completely above ground, partially buried (<10%), or located in a bunker or subterranean vault is considered an above ground storage tank, or AST. The majority of storage tanks hold petroleum products, so ASTs pose a significant threat to the environment. To prevent leaks, ASTs are regulated by the Spill Prevention, Control, and Countermeasures (SPCC) rule. This course will summarize the SPCC regulations that apply to above ground storage tanks. | 0.5 | Intermediate |
| Above ground Storage Tanks, Part 1 | This course provides information about several types of above ground storage tanks, associated auxiliary equipment, and general safety concerns related to these tanks and the materials they contain. | 1 | Intermediate |
| Above ground Storage Tanks, Part 2 | Process facilities use above ground storage tanks to meet a variety of operating needs. Operators who work with these tanks need to know what their responsibilities are and how to carry them out safely. This course covers operator responsibilities in areas such as routine inspections, sampling, gauging, and material transfers. | 1 | Intermediate |
| AC Fundamentals Review | This course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be "qualified." A person who does not meet this requirement should work under the direct supervision of a qualified person. | 1 | Intermediate |
| AC Generator Basics | "A generator is a device that converts mechanical energy into electrical energy. AC generators are commonly used to provide electrical energy for a wide range of commercial, domestic, and industrial applications. AC generators vary considerably in size, from small ones like automobile generators, to large generators that can supply power needs for a large city.<br>The purpose of this training course is to focus on AC generators that are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts)." | 1 | Intermediate |
| AC Generator Maintenance | The purpose of this course is to provide an overview of the operation and maintenance of large alternating current (AC) generators, which are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts). This course covers common AC generator maintenance tasks such as replacing brushes, performing overhauls, and conducting electrical tests. | 1 | Intermediate |
| AC Motor Basics | Electric motors provide the mechanical energy that is needed to operate a wide variety of equipment in an industrial facility. To make sure that the motors in their plant are operating properly, operators should be familiar with the fundamentals of motor operation and the basic operating characteristics of AC motors. In this course, the trainee will learn about the basic operation of an AC motor as well as its parts and functions. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 1 | This course introduces participants to AC motor controllers, which are devices, or groups of devices, that control the operation of alternating current (AC) motors. They can start, stop, or protect a motor; control its speed; and change its direction. By doing so, AC motor controllers make it possible to use motors more effectively in industrial operations. In most industrial facilities, electrical maintenance personnel are responsible for maintaining AC motor controllers and correcting any controller problems that arise. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 2 | Alternating current (AC) motor controllers serve a vital function in industrial facilities: They control the operation of AC motors. Therefore, when a controller breaks down, it is essential for electrical maintenance personnel to know how to locate the cause of the controller malfunction and be able to make the necessary corrections. It is also important for electrical maintenance personnel to be able to maintain the AC motor controllers in their facilities so that they operate with maximum efficiency and a minimum number of breakdowns. This course deals specifically with troubleshooting and maintenance procedures for AC motor controllers. | 1 | Intermediate |
| Access 2013: 01-Working with Databases in Access 2013 | Study the characteristics and components of a database, while learning the capabilities provided by Access 2013 to build and implement databases. You will also find discussions on the distinction between queries and forms, on how to update and delete records, on the process of adding records to labels, and on the different filtering options that can be used to view data. In the relational database section, you will focus on the difference between flat and relational databases, the rules that apply to building relational databases, how to identify entities and attributes as well as use database diagrams. Learn these foundational topics so that you can deepen your understanding of how to create and work with databases in Access 2013. This is the first course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 02-Creating, Modifying, and Managing Tables in Access 2013 | Databases can save you time and energy. They are also useful for managing large quantities of data. In this training, you will observe how to create them as you go through discussions on generating databases from a template, the Wizard, the old format, and manually. You will also spend time taking a closer look at database components, particularly tables, table relationships, and fields. In the field section, you will learn about what to do with unique values, testing a field, setting primary key fields, field sizes, field data types, setting default values, and changing data formats. Learn about how to work with each of these database elements in Access 2013. This is the second course in the Access 2013 (77-424) series. | 2.25 | Intermediate |
| Access 2013: 03-Working with Forms in Access 2013 | Take a closer look at forms as you focus on creating, enhancing, and formatting forms. In the form organization section, you will find presentations on tab modification, the way data sources are modified, and the steps to adding subforms. Some of the highlights from the formatting section include steps on applying themes and inserting images and backgrounds, how to sort records, and an overview of the printing layouts available. The navigation form section details the steps to creating navigation forms and how to format them. Overall, this course will introduce you to forms and teach you how to modify forms using Access 2013. This is the third course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 04-Working with Queries in Access 2013 | Learn the basics of queries as you look at the purpose of queries, how to add fields to queries, query modifications, working with multitable queries, and types of criteria in queries. There is also sections of this training dedicated to demonstrating how queries function. In the query calculation section, you will look at calculated fields, the Expression Builder, numeric and text calculation, and crosstab queries. The last section concentrates on action queries, which reviews how to use action queries, the steps to making table queries, how to update an action query, and append it. Take time to thoroughly explore queries so that you can use them to their fullest potential through Access 2013. This is the fourth course in the Access 2013 (77-424) series. | 2 | Intermediate |

VectorSolutions™

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Access 2013: 05-Sharing and Protecting Your Data in Access 2013 | Dive into making reports with Access 2013. They are the final piece to working with an Access database. There's also a section containing different tips for taking the Microsofts Access exam. The Protection section talks about protecting, splitting, merging, and encrypting a database. In the end, you will have a better understanding of how to use Access 2013 to create, modify, and print reports, as well as protect and maintain databases. With these skills, you will be equipped to work with reports and properly maintain databases. The final section of this course provides you with tips to help you successfully pass Microsofts 77-424 exam. This is the final course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Accessibility by Building Type: Multi-Use Facilities | "This one-hour course will address the design and construction of multi-use facilities using the requirements of the 2010 Americans with Disabilities Act (ADA) Title III Regulations Accessibility Guidelines - ADAAG, effective and mandatory for all such buildings and sites in the United States on and after the 15th of March 2012. You will experience a ""virtual"" tour of the newly renovated Texas A&M University - Memorial Student Center (MSC) in College Station, Texas by the State of Texas Registered Accessibility Specialist (RAS) of record - both exterior site and interior portions of the additions and renovations project. This presentation will discuss the myriad accessibility issues that had to be met during design and construction and will address the "above and beyond" selection criteria used by the APA / TGCPD Accessibility Awards Program - a joint program between the Accessibility Professionals Association and the Texas Governor's Committee on People with Disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc" | 1 | Intermediate |
| Accessibility by Building Type: Universal Residential Design | "Universal Design is a term used to describe the idea of creating buildings, products, and spaces accessible to older adults, people with disabilities, and people without disabilities. The focus is on creating an all-inclusive environment usable by everyone, regardless of age or physical ability. Today's designers are challenged by the many rules and regulations in their commercial practice including the American's with Disabilities Act (ADA) and the Fair Housing Act (FHA). The application of Universal Design in architecture and construction allows homeowners to continue to live in homes that they love as their physical needs change. This interactive online course addresses why learning universal design considerations - from the initial design concepts through the life-cycle of the home - is necessary. This course will also assist designers and those in the construction industry in providing an educated and sensitive approach when creating design solutions to meet the everyday ""lifestyle"" challenges of the disabled. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education." | 1 | Fundamental |
| Accessible Routes: Getting In, Out, and Around | A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Fundamental |
| Active Shooter and Other Acts of Targeted Violence | "Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders." | 1 | Fundamental |
| Active Shooter Response | An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers. | 0.25 | Intermediate |
| ADA Compliance in Business | The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities. | 1.25 | Intermediate |
| ADA Guidelines 2010: Building Blocks | "The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the "Building Blocks" of accessibility as established by the guidelines, including: Ground and floor surfaces (302), Changes in level (303), Wheelchair turning space (304), Clear floor space (305), Knee and toe clearances (306), Protruding objects (307), Reach ranges (308), Operable parts (309)" | 1 | Intermediate |
| ADA Guidelines 2010: Communication Elements and Features | The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include: What is effective communication? What are auxiliary aids and services? When is a state or local government required to provide auxiliary aids and services? Who chooses the auxiliary aid or service that will be provided? This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: 701 General 702 Fire Alarm Systems 703 Signs 704 Telephones 705 Detectable Warnings 706 Assistive Listening Systems 707 Automatic Teller Machines and Fare Machines 708 Two-Way Communication Systems ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Fundamental |
| ADA Guidelines 2010: General Site and Building Elements | "The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the "General Site and Building Elements" of accessibility as established by the guidelines, including: General (501)Parking Spaces (502)Passenger Loading Zones (503)Stairways (504)Handrails (505)" | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| ADA Guidelines 2010: Plumbing Elements and Facilities | The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the "Plumbing Elements and Facilities" of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and Toilet Compartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and Clothes Dryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Intermediate |
| Adobe Acrobat DC Essentials | Create, Manipulate, and Liberate your PDF Documents with Adobe Acrobat. In this "Uniquely Engaging"TM course from Bigger Brains you will learn to use Adobe Acrobat Pro DC to convert documents to PDF files, search within PDF documents, edit and markup PDF documents, and convert and optimize PDF files. Taught by 25-year IT veteran Chip Reaves, Adobe Acrobat DC Essentials will help beginners and experts get more from the latest version of the Adobe Acrobat solutions. | 3 | Fundamental |
| Adult Learning | People learn in a variety of different ways. That is why it is critical to understand the basics of adult learning when training people at work. This course explains how people learn and lists specific principles of adult learning. It also covers different learning styles and the importance of active learning, explains how information is stored in and later retrieved from the brain, and gives tips for aiding that process. | 0.25 | Intermediate |
| Advanced Management Skills | In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand. | 5 | Intermediate |
| Advanced Motors | This course on Advanced Motors addresses the more advanced maintenance practices to ensure electric motor long term reliability. An overview of various motor types, construction, and applications is discussed. The NEMA (National Electric Motor Association) mountings and dimensional data of different frame sizes of motors is presented to assist maintenance personnel in the selection and maintenance of facility electric motors. Lastly, energy efficient motors are reviewed to allow a better understanding of how their use can reduce operating costs. | 0.5 | Advanced |
| Advanced Project Management: Advanced Project Risk Management | Project risk is based on a simple equation: Event Risk equals the Probability of an Event times the Consequences of the Event. As project managers we know this, either implicitly because we've studied and read about risk in projects or we know it from first-hand experience. We've also learned along the way that we cannot fully eliminate risk, only mitigate the risk and that there is no such thing as a risk free project or action. During this interactive online course on project risk management we will go beyond the fundamental truths of project risk and cover how decisions are made, delving into decision theory and decision making in the face of uncertainty; as well as exploring risk management through the four phases of Risk Identification, Risk Analysis, Risk Response, and Risk Mitigation and Control. | 2 | Advanced |
| Advanced Project Management: Advanced Project Scheduling | "Without a full and complete schedule, the project manager will be unable to communicate the complete effort, in terms of cost and resources, necessary to deliver the project. Knowing scheduling techniques will better prepare you to make decisions about schedule development and give better direction to your project team about schedule performance. This interactive online course will teach you the importance of scheduling in contract fulfillment, as well as introductory concepts for scheduling contract provisions, the concepts of delays and claims, and methods for delay claim resolution. You will also learn about establishing a scheduling model, best practice principles, and the eight steps for developing a good schedule model." | 1 | Advanced |
| Advanced Project Management: Converting Strategy Into Action | "All strategic change in an organization, any organization, takes place through projects and programs. To ensure that the strategic change results in the desired outcomes, however, takes planning, thought, and focus. In short, to get effective strategic change you need to have an effective strategic plan. Through an effective strategic plan, you are better postured to ensure that the projects and programs that are implemented create the future envisioned for your organization, be it increased profit or manufacturing of a new product. This interactive, online course is intended to change that mindset by helping you understand that to generate the outcomes any organization intends, or desires, requires direction via an actionable strategic plan. The course is intended for any engineer, project or program manager, engineering manager or executive who wants to understand strategic planning via a simple process that will replace chance and luck with specific goals, objectives, and action initiatives." | 1 | Advanced |
| Advanced Project Management: Executing Complex Programs | In today's fast-paced, competitive, and dynamic environment, the ability for an organization or individual to successfully execute a program is severely challenged. This is because programs are complex, wrought with uncertainty, and ripe with ambiguity. Efforts to navigate the complexity of programs often result in the program manager simply expending more of their vital time to make sense of it all, but there are only so many hours in the week and regardless how many hours you invest, the program will still be complex. In this interactive online course, you're going to be introduced to the Program Management Competency Model, which was developed to assist organizations and individuals make sense of the complexity of programs by focusing energy on the development of specific skill sets that yield the biggest return on investment. The six performance and eight personal competencies highlight areas where the development of knowledge, skills, and experience will return the greatest rewards for both organizations and individuals. The biggest reward being the capability and capacity to better execute complex programs. | 1 | Advanced |
| Advanced Project Management: Integrated Project Delivery | "Integrated Project Delivery is a construction delivery method that leverages a number of current trends to increase productivity and the speed of project delivery. This interactive online course will teach you about the importance of IPD's foundation of relational contracts, as well as the main ingredients that include a high-level of communications and collaboration and a no-fault work environment, from project charette through building commissioning. You will also learn about the roles that lean construction processes and building information modeling play in performing, as well as recognize that IPD has many of the traits of construction delivery systems that are compatible with green building certification systems" | 2 | Advanced |
| Advanced Project Management: Managing Project Teams | Successful projects are not delivered through technical expertise alone. It takes the ability to manage and lead teams and people effectively. The most successful project managers know how to build and maintain an environment in which both teams and individuals are motivated to do their best work. Founded on a wide range of research and real-life experiences, this interactive online course will help you understand how to develop and sustain effective project teams. You will learn tools, techniques, and tips you can add to your toolbox of people-management skills, enabling you to improve performance for yourself, your team, and the individuals on your project team. | 1 | Advanced |
| Advanced Project Management: Project Management in a Dynamic Environment | This interactive, online course covers the nine principles that master project managers, and their teams, put into practice managing projects in a dynamic environment. This environment is one experienced by most, if not all, project managers. It's an environment that holds speed and uncertainty as two of its most relevant characteristics. Both of these characteristics can cause severe stress during project planning and execution, and can lead to project failure if the project manager doesn't develop the skills, knowledge, and leadership ability demanded in the dynamic environment of today's projects. Mastering these nine principles will help you develop the inward and outward orientation, the formal and informal procedures, and the high-touch and high-tech communications strategy that you will require to be an effective, master project manager on your dynamic projects. | 1 | Advanced |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Advanced Project Management: Project Performance Management | To control a project and keep it on budget and schedule, you need to have a quantified sense of where the project is. How is it doing? Is it on time? Is it on budget? Are the deliverable's being delivered? Are the end users satisfied? To achieve this level of project performance assessment requires a deeper understanding of metrics and measures. During this interactive online course, you will go deeper than the Project Management Institute's Project Management Book of Knowledge® takes individuals in Earned Value Management. This course will also expand your understanding of metrics and Key Performance Indicators, which are essential tools and techniques project managers must develop to effectively conduct project performance measurement on today's complex projects. | 1 | Advanced |
| Advanced Project Management: Sustainability in Project Management | "Confirming that sustainability concepts are designed into a project from the beginning ensures that project sponsors and owners receive the maximum value, either through reduced project costs or through reduced life cycle costs. This interactive online course will teach you the principles of sustainability and how you can use this basic knowledge to increase the value in the projects you manage. You will also learn about the effects of climate change on projects and how to properly address the risks that arise from climate change. Additionally you will learn how sustainability can be integrated into traditional project management by addressing each of PMI's five project management process groups and eleven knowledge areas." | 2 | Advanced |
| Advanced Project Management: The Power of Project Leadership | This course should look at project management and leadership, then go into the fundamental leadership mistakes made by project managers and how to remedy them. Throughout, actionable tips and recommendations should be provided to enhance the user's skill set in project leadership. The course is geared for active project practitioners with experience in managing projects and mid- to senior-level managers. The course will provide information that can be applied to current projects, allowing for introspection. New project managers, or those aspiring to lead projects, however can benefit from the course by learning about the skill set required by effective project leaders. | 1 | Advanced |
| Advanced Project Management: Understanding the Project, Program, and Portfolio Architecture | "Project and construction managers are at the leading edge of delivering benefits to an organization. But how does one's efforts fit in the bigger picture? And why do you even need to know the bigger picture? This interactive, online course will define project, program and portfolio management, as well as explore the key differences and interactions. This course will also introduce you to the concept of benefits realization management and how the project, program, and portfolio hierarchy can be used to bring strategy to life and ensure more successful projects. This course will help professionals both new to, and experienced in, project management. Whether you're new to project management, or have been practicing it for some time, understanding the hierarchy of project, program and portfolio management will help you take your skills to the next level." | 1 | Advanced |
| AEC Success: 7 Steps for Using LinkedIn® Effectively | LinkedIn® is an avenue you can use to help you build your reputation in your field and become better at marketing and business development. This interactive online course will teach you ten action steps to take to build a strong LinkedIn® profile. Additionally you will learn who you should connect with on LinkedIn® to maximize your exposure. You will also learn the do's and don'ts of maximizing your usage in LinkedIn® groups. | 0.5 | Fundamental |
| AEC Success: Business Development and Sales | "Everyone lives by selling something." Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action. | 1 | Fundamental |
| AEC Success: Conflict Resolution in the Workplace | Team projects often result in conflicts that have to be resolved between different parties. Learning to resolve a conflict is a very valuable skill that can be used in all endeavors of business and life. This interactive online course will teach you five strategies for dealing with conflicts. Additionally you will learn two core skill that are necessary to successfully resolve conflicts. You will also learn about emotional awareness and how it can help you in certain situations. | 1 | Fundamental |
| AEC Success: Designing Presentation Visual Aids | Whether you're presenting at a conference or at a lunch and learn, visual aids can be a powerful tool to catch and hold your audience's attention and reinforce the message you are trying to get across. This interactive online course will outline different types of visual aids and how to use them effectively. Additionally, you will be provided with strategies on how to effectively build a slide deck that will powerfully transmit your message to the audience in an engaging way. Attention spans are low in today's world, but after this session, you'll have the tools needed to hold attention with eye-catching visual aids. | 0.5 | Fundamental |
| AEC Success: Effective Decision Making | Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home. | 1 | Fundamental |
| AEC Success: Five Steps to Effective E-mail Management | Poor email management can kill productivity and cause you to be stressed. Implementing a proper email system will help you be more productive, more billable, and give you more time to do deep meaningful work. This interactive online course will teach you email processing and management steps to help you simplify your email filing system. You will also learn 7 steps to writing more productive emails. | 0.5 | Fundamental |
| AEC Success: How to Become a Top-Notch Industry Leader | Are you a positive powerful leader? Most engineers and other technical professionals strive to become a "manager" and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift. | 1 | Fundamental |
| AEC Success: How to Communicate and Present Effectively | Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator. | 1 | Fundamental |
| AEC Success: How to Create a Focused, Productive and Low Stress Career and Life | Being unorganized can lead to a stressful and less productive career and life. This interactive online course will teach you how to improve time management efforts to bring more balance and focus to your career and life. You will learn three specific rules for effective time management and better work life balance. You will also learn seven things you can do to increase your ability to focus. | 0.5 | Fundamental |
| AEC Success: How to Find and/or Become a Mentor | A mentor is someone who can guide you toward reaching your career goals and ultimately your definition of success. This interactive online course will teach you how to find a mentor using five specific considerations. Additionally you will learn how to become a mentor and then benefits mentoring will have on your career success. You will also learn strategies for getting the most out of the mentoring relationship. | 0.5 | Fundamental |
| AEC Success: Improving Organization and Productivity | In this day and age, it is becoming nearly impossible to focus and be productive because people are being pulled in so many different directions. Recognizing high leverage tasks can help you become organized and productive as you prepare and plan your day. In this interactive, online course, you'll be given actionable strategies for increasing your productivity on a day-to-day basis including tips for effective email management. | 0.5 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| AEC Success: Networking and Relationship Building | Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come. | 1 | Fundamental |
| AEC Success: Obtaining the Right Credentials in Your Career | Professionals of all ages are faced with career and life changing decisions every day and in order to create an extraordinary A/E/C career you must make the right decisions for you, while supporting the organization you work for and the clients you serve. This interactive online course will walk you through a goal setting process, that you can utilize to help make critical career decisions and will also serve as a credential planning process. Furthermore, at the end of this course, using the process provided you will be able to identify the right credentials for you, so you can start to pursue them and change the course of your career forever. | 0.5 | Fundamental |
| AEC Success: Strategies for a Successful Interview | We have all been through the interview process, either through applying for a job/promotion or chasing a project. We also often follow established templates that almost everyone uses which result in eye rolling by the interviewers. This online interactive course can help you get out of this rut so that you can develop a fresh look for your next interview in pursuit of a project. You will learn what to research before the interview, how to observe and analyze the environment of the interview location, a strategic sitting layout and how to use all of this to your advantage prior to the interview. This course will show you how to manage the pace of the interview and how to answer tough questions. Finally, you'll learn how to elegantly end the interview and which follow-up activities will help you standout amongst the thundering herd. Learn what to do and what NOT to do to subtly manage your client interview to ensure you and your team members shine! | 1 | Fundamental |
| AEC Success: Time Management and Billable Hours | Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you. | 1 | Fundamental |
| Agile Project Management: 01 - Agile Series Overview | What comes to your mind when you think Agile? You're probably thinking about the ability to move quickly and easily, and you would be right. Now apply that definition in the context of project management. An Agile project manager is someone who can move quickly, adapt to change, and make smart adjustments on the fly. This courses primary purpose is to increase your knowledge of the principles and processes involved in the Agile method of project management as organized and suggested by the Project Management Institute. We will spend a lot of time discussing what you need to know and the knowledge required or at least expected to be known by most agile practitioners. The courses in this series are loosely based on the domains of: Agile principles and mindset, Value driven delivery, Stakeholder engagement, Boosting team performance practices, Adaptive planning, Problem detection and resolution, Continuous improvement. Upon completion of this series you will be well versed in the methodologies and principles of Agile project management and effectively prepared to sit for the PMI-ACP exam from PMI. | 0.25 | Intermediate |
| Agile Project Management: 02 - Traditional vs. Agile Project Management | The idea of performing project management work in an agile way did not magically appear in the last couple of years. But, what is an agile project management? This course examines what it is and the difference between agile and traditional project management. | 0.75 | Intermediate |
| Agile Project Management: 03 - Agile Manifesto Principles 1 - 6 | Since the Agile Manifesto serves as the guiding principle of the entire agile project management collective, it also holds a prominent part in the Project Management Institute-Agile Certified Practitioner exam. In this course, we will explore the first six principles of the manifesto in depth. | 0.75 | Intermediate |
| Agile Project Management: 04 - Agile Manifesto Principles 7-12 | At the root of the modern structure of agile project management is the Agile Manifesto, and it should be used as a guide to the philosophy of the agile project management approach. This course focuses on the last six agile principles as well as the Declaration of Interdependence. | 0.5 | Intermediate |
| Agile Project Management: 05 - Value Driven Project Management | To select the best project to work on, you must assess what is to be gained from its efforts and at what costs. Benefits are best placed in the perspective of the customer or business value. This course covers value-driven development. In this, we discuss how to determine the amount of time and effort to spend on a project. It also discusses how to determine when to expend time and resources on any one or more features, functions, procedures, parts, and/or elements of that project over others. This course makes clear what the value is and how utilizing agile project management approaches can deliver to that value. | 1.25 | Intermediate |
| Agile Project Management: 06 - Setting Vision and Prioritization in Agile Projects | Agile projects are selected based on certain aspects and considerations. Prioritization and planning is where most of the effort and time is spent in agile project management. This course delves deeper into prioritization and risk management in agile project management. We expand on the prioritization of the features and functions of our selected projects, building out our products vision and business case for development, and laying the foundation for our products plan of fulfillment. Also, greater detail and care is spent on the tools, techniques, and other concepts surrounding the planning at all the various levels of an agile project. | 0.75 | Intermediate |
| Agile Project Management: 07 - Scrum and Extreme Programming (XP) Methodologies | This course is about the agile methods and frameworks of Scrum and Extreme Programming. These are, arguably, the two most well known of the agile project management methodologies. In this course, we cover the basics, principles, and practices of both methods. | 1.5 | Intermediate |
| Agile Project Management: 08 - Other Less-Common Agile Methodologies | In this course, we explore some of the lesser known agile project management approaches beyond the popular ones of scrum and extreme programming. Their lack in popularity right now does not mean they will always be lesser known. They may become the go to approach in the future if certain industries or subsets of the agile community adopt them more fully and evangelize their exalts. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Agile Project Management: 09 - Planning Agile Projects | Planning in agile projects differs from waterfall projects or other more traditional projects in the aspect of adapting to the needs and expectations of the stakeholders and the product development in a flexible manner. This encourages changes and course corrections as often as necessary, and makes planning essential to a projects success. This course examines how to best plan an agile project, the differences between the various levels of project planning, and useful tools to aid in the planning. | 1.25 | Intermediate |
| Agile Project Management: 10 - Estimating Agile Projects | Estimating the work, effort, and time activities will take during a project is a very challenging exercise. However, its also a very important and crucial piece to any project management. How estimation works in agile projects is slightly different than in traditional projects or daily operations. The circumstances and variables are more varied in agile projects than in traditional project needs. This course aims to explore those differences, the strategies at play in agile estimation, and the various tools and techniques any agile practitioner whether that be an agile project manager, agile coach, ScrumMaster, or agile development team member should be aware of. | 1.25 | Intermediate |
| Agile Project Management: 11 - Implementing Agile Projects | A good agile project manager should be knowledgeable about the various tools and techniques of the agile project management trade. They should also be versatile enough to know when to apply the documented tools and techniques in their literal or highly structured manners and when to bend or accommodate them to the requests of the agile team. This course is aimed for those who may be taking on the role of agile project manager, agile coach, agile practitioner, agile mentor, or ScrumMaster. We discuss the basics of each type of agile manager, their similarities and differences, how to use the tools and techniques available, and what role agile management has in an agile project. | 1 | Intermediate |
| Agile Project Management: 12 - Team Formation and Creating an Agile Environment | There is a lot to learn and be aware of when working with agile project teams. Agile project team formation and empowerment requires setting up self-organizing and self-empowered groups of skilled and supported individuals. This course focuses on how teams are most effectively formed, how they are supported, and how those teams can more effectively work together and be continuously successful. | 1.5 | Intermediate |
| Agile Project Management: 13 - Communication in Agile Projects | There are many challenges and potential pitfalls of communication throughout the duration of a project. Communication is absolutely critical to any team activity, and agile project management is a team activity. The success and failure of an agile project can certainly rest on the proper or improper use of communication. This course covers the many aspects of communication in an agile project. The general goals of this course are being aware of the various modes of communication, the importance of communication in an agile project, and how to best apply the appropriate tools and techniques surrounding communication to best support your project. | 1.5 | Intermediate |
| Agile Project Management: 14 - Increasing Agile Stakeholder Engagement | Project stakeholders are all those affected by the project, not just those who fund the project or those we are building the project for. The product owner is a stakeholder, but he or she is not the one using the product. A bigger set of stakeholders are the end users. Even beyond that, there are many other project stakeholders. This course covers who the stakeholders are, how to consider their needs as the project progresses, and several tools and techniques that help in incorporating the stakeholders needs and wants. | 1 | Intermediate |
| Agile Project Management: 15 - Soft Skills and Servant Leadership in Agile Projects | An agile project manager ensures the project and its components can run. He or she ensures that everything that is needed is taken care of and puts the agile project management framework and processes in place. In essence, a project manager leads by example. In this course, we explore how a good agile project manager utilizes soft skills and leadership in order to inspire team members, keep the lines of communication open, and deliver an excellent product. | 1 | Intermediate |
| Agile Project Management: 16 - Testing and Risk Management in Agile Projects | This course focuses on the process of managing potential threats and other forms of risks throughout the agile projects lifecycle. We cover how to test and validate in order to gather information to improve and adapt the processes of agile project management. We continue talking about the power of adaptive planning in agile projects and discuss how to optimize value delivery by selecting and tailoring the teams processes based on experiences and project feedback. | 1 | Intermediate |
| Agile Project Management: 17 - Problem Detection, Metrics, and Resolution in Agile Projects | There are always going to be problems in agile projects. Some will be major and some will be incredibly minor. Being able to detect, forecast, and address the problems especially any small problems before they become big is key to successful agile project management and practice. In this course, we concentrate on the needs and methods around the detection of problems, errors, issues, and other things deemed outside our acceptable realm of control. We also examine a few of the common tools, measurements, techniques, and other diagnostics that support the teams efforts to detect and resolve problems within the project. | 1 | Intermediate |
| Agile Project Management: 18 - Quality and Earned Value Management in Agile Projects | Agile project quality is a discipline that is built in and incorporated in all that is done from considering, to planning, to executing, to testing, to delivering, and every minute in between. Quality is a mindset and a practice throughout the agile project lifecycle. In this course, we concentrate on agile project quality and the role it plays in the gains or value. As we talk about the standards and the expected levels of quality of the products, we discuss the skills needed in order to measure quality. | 1.25 | Intermediate |
| Agile Project Management: 19 - Continuous Improvement for Management and Project Agility | No agile project is perfect. No person on an agile team is perfect. There is always room for improvement and growth. This course is about the constant striving for improvement. In this course, we explore the various methods and concepts surrounding the need and ability to continually improve an agile project, ourselves, our teams, our culture, our organization, our agile project management, and other areas, whether directly or indirectly. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Agile Project Management: 20 - PMI Code of Conduct in Agile Management | The discipline of agile project management does not have a particular governing body, standardization, or a certain entity that is the gold standard for certification in this field. The Project Management Institute has made tremendous inroads in adding some formality in this regard by collecting the best practices, concepts, approaches, and terms. This final course in the Agile series discusses the PMI Code of Conduct, which is essentially a list of values that should be found within any project. | 0.5 | Intermediate |
| Air-Purifying Respirators | Air-purifying respirators are one of two major classes of respirators (the other being air-supplying respirators). This course explains the basics of air-purifying respirators, including the three major types: single-use disposable respirators, also called dust masks; air-purifying respirators with a flexible, elastomeric quarter-mask, half-mask, or full-mask facepiece; and powered air-purifying respirators, or PAPRs. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-purifying respirators. | 0.5 | Intermediate |
| Air-Supplying Respirators | Air-supplying respirators are one of two major classes of respirators (the other being air-purifying respirators). This course explains the basics of air-supplying respirators, including the three major types: self-contained breathing apparatuses, or SCBAs; supplied-air respirators (SARS), also called airline respirators; and combination respirators. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-supplying respirators. | 0.5 | Intermediate |
| Alert Driving | Understanding the importance of being an alert driver can mean the difference between life and death. Learn how to observe conditions around you, anticipate hazardous situations, and react to avoid hazards with our Alert Driving course. Our course discusses driving at safe speeds, the dangers of driving while impaired, and illustrates how to increase your reaction time by following the two-second rule. Alert driving is a fundamental element of safe, defensive driving techniques. | 0.25 | Intermediate |
| Alternating Current | Alternating Current is a course designed to familiarize participants with how alternating current (AC) circuits work, and how voltage and current can change depending on the load, the source, and how the load and source are connected together. After completing this course, participants should be able to determine current and voltage values for an AC sine wave; explain how resistance, inductance, and capacitance affect AC circuits; explain how to calculate power in AC circuits and how to adjust power by correctly selecting and sizing circuit components; and describe the construction, operation, and use of various types of transformers. | 2 | Intermediate |
| American Chemistry Council's Responsible Care Program | In this interactive online course, you will be introduced to the program requirements for the American Chemistry Council Responsible Care Program. In addition, you will evaluate the global EHS initiatives that have been affected by member companies that participate in the Responsible Care Program. Finally, the inspection and reporting requirements will be explored regarding participation in the program. | 1 | Intermediate |
| An Effective Leader's Guide to Time Management | Ever wonder how some people get more done in the same 24 hours than you do? Gain the skills to up your productivity and own your time with this effective leaders guide to time management. This course uses application exercises and a rich multi-media process to integrate effective time management skills into your daily practices. This results in increased productivity, effectiveness, and overall desired outcomes. | 0.5 | Intermediate |
| An Entrepreneur's Guide to Networking | Facebook, LinkedIn, Twitter, professional associations, other departments, competitors the opportunities for networking, both social and in person, are endless. Thus it is vital to learn to be strategic about your networking efforts in order to build the best relationships and truly get the results you want. Through application exercises and a rich multimedia process, this course will teach you what you need to know and do to be a strategic and effective 'networker'. | 0.5 | Intermediate |
| An Introduction to Fitwel® | "What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®" | 2 | Fundamental |
| Anatomy of Construction Defects | Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that. | 2 | Intermediate |
| Anhydrous Ammonia Awareness | Anhydrous ammonia is a chemical compound composed of nitrogen and hydrogen that has been liquefied and compressed into a gas. It is used as fertilizer, in power plants, and as a refrigerant. This course describes what anhydrous ammonia is and how it is used in general industry. This course also discusses the permissible exposure limits of anhydrous ammonia, the personal protective equipment that should be worn when working with or around anhydrous ammonia, handling precautions, as well as emergency response procedures. | 0.25 | Intermediate |
| Anti-Harassment Training for All Employees - California | "Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for the state of California. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to all workers by Jan. 1, 2020, and every two years thereafter. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy." | 1 | Intermediate |
| Anti-Harassment Training for All Employees - Maine | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for Maine. | 1 | Intermediate |
| Anti-Harassment Training for All Employees - New York City and State | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for all of New York, including New York City. | 1.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Anti-Harassment Training for All Employees - Non-State Specific | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, will help foster an atmosphere of respect. Compliant for use in IL | 1 | Intermediate |
| Anti-Harassment Training for Supervisors and Managers - California | "Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, "sexual harassment" is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in California this course includes specific references to California laws regarding Sexual Harassment training. This course is designed to be compliant with California standards. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to supervisory personnel on prevention of sexual harassment. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy." | 2 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - Connecticut | "Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, "sexual harassment" is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in Connecticut this course includes specific references to Connecticut laws regarding Sexual Harassment training. This course is designed to comply with Connecticut standards." | 2 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - New York City and State | "Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in New York this course includes specific references to New York requirements regarding Sexual Harassment reporting. This course is designed to be compliant with New York standards. This course is specifically for Managers and Supervisors that are currently working or have the potential to work in New York State and New York City." | 1 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - Non-State Specific | "Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. This course is meant to be taken for general anti-harassment training and does not discuss the standards and/or regulations of any specific state." | 1 | Fundamental |
| Appraising Performance | Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment. | 3.5 | Intermediate |
| Arc Flash Safety | "An arc flash is a release of energy that instantly superheats the air and any nearby components, causing an explosion. Its a serious hazard when working on or near energized electrical equipment. OSHA requires that all employees understand the electrical hazards to which they are exposed. This course introduces the dangers of arc flash and presents common methods for preventing and protecting against those dangers, such as risk control hierarchy, safety boundaries, lockout/tagout, and PPE guidelines. Its based primarily on the National Fire Protection Association (NFPA) 70E Standard for Electrical Safety in the Workplace, which is the recognized industry resource in the United States for best electrical work practices." | 0.53 | Intermediate |
| "Are You Ready?" Checklist | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the "Are You Ready?" Checklist human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplaceVector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Asbestos Awareness | Dispel some of the common myths about asbestos by educating your team about Asbestos Containing Materials (ACM) and how to work safely around them. This course describes the most common types of asbestos as well as the hazards asbestos may present. It provides an overview of the history of asbestos use, exposure limits, detection, prevention, and regulation. It also covers some of the potential effects of long-term exposure including asbestosis, lung cancer, and mesothelioma. | 0.5 | Intermediate |
| Asbestos Awareness - 2 Hour Training | Asbestos is a group of naturally occurring silicate mineral fibers that have been used extensively in thermal insulation products, building materials, and vehicle brakes and clutches. Despite many of its desired unique properties in commercial and industrial uses, it has been determined that sustained exposure to elevated concentrations of airborne asbestos can lead to serious and potentially fatal health conditions. Some of these conditions can take 20 years or more to develop, therefore early detection and avoidance of asbestos is vital. This interactive online course describes what asbestos is and the hazards it presents. | 2 | Intermediate |
| ASHRAE 100: Energy Efficiency in Existing Buildings | The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock. | 2 | Advanced |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality | "ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55)." | 1 | Fundamental |
| ASHRAE Essentials: 55-2017 – Thermal Environmental Conditions for Human Occupancy | This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners. | 1 | Fundamental |
| ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings | "This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners." | 1 | Fundamental |
| ASHRAE Guideline 13-2014, Building Automation Systems | Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems. | 2 | Fundamental |
| Assessing Occupational Exposure | Assessing occupational exposures is a process for managing the health risks associated with workplace exposures to chemical, physical, and biological agents. This interactive, online course will cover ways to assess and prioritize exposures into exposure control categories to focus resources on the highest risks, differentiate "acceptable" from "unacceptable" exposures, and discuss ways to control "unacceptable" exposures. This course will introduce comprehensive strategies to best manage risk and resources. | 0.5 | Intermediate |
| Asset Condition Management: Alignment and Balancing Training | "Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures." | 1 | Intermediate |
| Asset Condition Management: Motor Testing | "Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors." | 1 | Intermediate |
| Asset Condition Management: Setting Up an Oil Analysis Program | "Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel." | 0.5 | Intermediate |
| Asset Condition Management: Vibration Analysis Training | "Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring." | 1 | Intermediate |
| Back Injury Prevention | If you work with heavy loads or repeatedly twist to move materials from one location to another, you may be at a greater risk of back injury. Back injuries are suffered by more than one million workers every year, account for twenty percent of all workplace injuries, and cost companies billions of dollars. This course will help prevent back injuries at your workplace by raising awareness about the common causes of acute and cumulative back injuries, signs and symptoms of back injuries, and the engineering and administrative controls that can be implemented to prevent back injuries. | 0.38 | Intermediate |
| Backhoe & Front End Loader Safety | Backhoes are one of the most common types of construction equipment found on jobsites. Backhoe loaders can dig, scrape and load material. With special attachments they can perform virtually any required task. Backhoe loaders are complicated machines and it is important your employees know and understand the equipment capabilities. This program covers the maintenance and operation of a backhoe with emphasis on safety. This program contains both an English & Spanish version on the DVD and also comes with a Leaders Guide, PowerPoint presentation, end of course quiz, attendance log, and completion certificate. | 0.25 | Fundamental |
| Backing Up Safely | How often do you need to back up your vehicle? If you are like most drivers, you spend less time backing up than driving forward. However, backing up is one of the more risky maneuvers you do throughout the day, especially if it is in crowded parking lots or restricted spaces. This course will identify potential hazards for backing up and best practices for avoiding those hazards. | 0.25 | Intermediate |
| Baler Safety | Cardboard balers are a common sight in many retail stores. There are many different types of balers that may operate in slightly different ways. However, what they all have in common are safety hazards and the need to follow safe operating procedures. This program is designed to train employees how to operate a baler safely.Topics covered also include:Basic safety rules for baler usePre-use inspectionStandard operating proceduresSafely removing the baled cardboard | 0.15 | Fundamental |
| Banding Safety | For many freight carriers, loads must be secured to prevent shipping damage. Proper securing is especially important for uneven and bulky loads that are placed in semi-trucks. Unsecured loads can cause the truck to be imbalanced, which could potentially cause an incident while the truck is moving or being unloaded. This course will provide an overview of banding safety, and the practices a material handler will need to remain safe when banding and un-banding loads. | 0.5 | Intermediate |
| Basic Business Finance | "Confused By Debits, Credits, Balance Sheets, And Other Business Accounting Terms? This Is The Course For You! Learn the basic accounting and finance concepts you need to be successful in modern business." | 1 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Basic Electrical Maintenance | "Do you know how to troubleshoot common electrical systems? This interactive online course on basic electrical maintenance will equip you with the knowledge you need to safely identify and troubleshoot common and standard electrical systems and components found in commercial buildings. Whether you're responsible for performing the maintenance, supervising maintenance personnel, or planning projects in this area, this information is critical for you to be aware of, and will allow you to lead and guide others in your organization. Knowledge of the typical electrical components covered in this course will be critical for your personal safety, and the safety of others that you're working around. Improper actions or conditions encountered with these devices and components could result in serious unsafe conditions, including fire hazards, electrical shock, and even death. This course will show you how to avoid these conditions while operating and resetting GFCI receptacles and while replacing ballasts, light switches, and electrical receptacles." | 0.5 | Fundamental |
| Basic Electrical Theory | "Do you know the difference between current and voltage? This course on basic electrical theory will equip you with the knowledge you need to handle various calculations involving electrical circuits, both AC (alternating current) and DC (direct current). You will learn how to calculate voltage and electrical power in a circuit using Ohm's Law and Watt's Law. In this interactive online course, we'll discuss how to determine the electrical resistance for the wiring in a circuit and the size power unit that will be needed to drive a piece of equipment. Finally, you'll learn the difference between single- and three-phase power." | 0.5 | Fundamental |
| Basic Electrical Troubleshooting | "In this interactive online course, you'll learn basic electrical troubleshooting concepts. You'll learn the difference between a step-up and a step-down transformer, how to test for unbalanced loads and blown fuses, and how to tell if the insulation on a wire is adequate so it doesn't present a hazard. You'll be introduced to tools such as a clamp-on ammeter, megohmmeter and voltmeter used in the practice of electrical troubleshooting. The information covered in this course can be applied at your facility for safe work on large and small electrical components." | 0.5 | Fundamental |
| Basic Electricity Review | This course introduces the fundamental principles of electrical theory as applied to electrical circuits and devices such as transformers, inductors, and capacitors. The general topics covered in this course include the nature of electricity, basic electrical quantities and their units of measurement, electrical circuits, and electromagnetism. | 1 | Intermediate |
| Basic Emergency Power Systems | In this country, as well as in most other developed countries, we have gotten used to the conveniences and comforts that electricity provides. Much, if not most, of our modern technology is heavily, or totally dependent on electricity as its energy source. This interactive online course covers the basics of Standby Electrical Power Systems. These are power systems which remain in a standby mode (meaning "ready to go") just-in-case the utility-supplied electricity to a campus, a building, or an individual room fails, for whatever reason. | 0.5 | Fundamental |
| Basic Rigging, Part 1 | The purpose of this course is to provide participants with an overview of basic rigging. Safely accomplishing any rigging operation involves selecting the proper equipment, determining if the equipment is in acceptable condition, and properly carrying out all applicable procedures. This course focuses on basic rigging components. | 1 | Intermediate |
| Basic Rigging, Part 2 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on basic rigging procedures. | 1 | Intermediate |
| Basics of Leadership: 01-Leadership Challenges | Leaders in the 21st century must accommodate themselves to todays rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 02-Changes in Corporate Culture | A companies organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 03-Keeping Employees Energized | Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3. | 1 | Intermediate |
| Basics of Leadership: 04-Knowledge Management | Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in todays workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 05-Elements of Change in Business | Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why its essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 06-Leadership Dynamics | Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series. | 1 | Intermediate |
| Batteries | A battery is a primary component of a substation or switchyard direct current (DC) control system. The function of the control system is to supply control power to operate critical devices such as protective relays, alarms and status indicators, supervisory and communications equipment, and switchgear operating circuits. This course describes the role of the battery in the DC control system, the components of a lead-acid battery, how a battery works, battery ratings, and general battery inspection steps. | 1 | Intermediate |
| Battery Acid and Spill Safety | Battery acid is a corrosive substance that can be harmful to individuals if it leaks or is spilled out of an enclosed battery. Therefore, prompt cleanup of all battery acid spills is necessary to prevent injuries. This course will explain procedures that will help you identify the hazards associated with batteries, limit your exposure to those hazards, and teach you how to properly handle spills and releases. | 0.75 | Intermediate |
| Battery Applications | "This 3-hour interactive online course is an overview of the most common chemical cell batteries in use today. It includes information about both primary and secondary battery types. Battery characteristics such as the chemical composition, electrical parameters, and physical construction are reviewed. Appropriate application issues are discussed for each battery type as well as the appropriate charging methods for rechargeable battery types. The course includes a test at the end of each scenario to measure your understanding of the material." | 3 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Be Proactive! Inclusion Starts With You | An inclusive work environment is created by individuals who value each other's differences - and, are proactive in stopping workplace discrimination or harassment. It's often difficult to know how to react when witnessing an individual or group of people experiencing any form of discrimination or harassment - but don't ignore it and walk away! This course will provide three ways you can be proactive about inclusion in your workplace. | 0.2 | Intermediate |
| Bearings Basics | Bearings are machine parts in which other parts turn or slide. Almost every piece of moving machinery in an industrial facility uses bearings. This course describes the different types of bearings, their functions, and corresponding maintenance procedures. | 1 | Intermediate |
| Bed Bugs: Facts And Prevention | Bed bugs have made a comeback in the US due to increased international travel. Bed bugs can crawl out of a travelers suitcases and establish themselves in hotel rooms. A Bed bug problem can be quite expensive. In fact, an outbreak could lead to serious litigation and large settlements and loss of business. Can your property afford it? This program trains your employees to spot bed bugs so they can be caught in the early stages and remediated before a major infestation occurs. This DVD contains both English and Spanish versions. | 0.15 | Fundamental |
| Behavior-Based Safety | Behavior-based safety, or BBS, is an approach to improving workplace safety by focusing on what workers do and why they do it, and then applying strategies to promote safe behaviors in the future. It is based on the belief that human behaviors contribute in some way to many or most accidents. BBS cannot comprise a safety program all by itself. Rather, it is a tool that can be used along with other tools to create an effective workplace safety program. | 0.5 | Intermediate |
| Benzene: Safe Handling & Storage | This course will review the information required to safely handle benzene. Benzene is a flammable organic liquid that is classed as a potential human carcinogen. Training will discuss the production and use of benzene in manufacturing processes. The applicable regulatory requirements will be reviewed. The physical and chemical properties will be covered to help ensure safe handling practices. Potential exposure mechanisms, symptoms of exposure, and the use personal protective equipment are topics for consideration. The requirement for storage, handling, and transportation of benzene will be included in the training. | 1 | Intermediate |
| Better Business Writing | Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world. | 0.75 | Intermediate |
| Bioremediation Tactics | "Bioremediation refers to a set of processes which involve the use of living things to break down hazardous substances in the environment into less toxic or non-toxic substances and restore contaminated soil or water to its original unpolluted state. There are many methodologies which fall into the category of bioremediation. All involve living organisms. Some work by stimulating or enhancing the inclination of certain microorganisms to break down undesirable, polluting substances. Other methods involve the use of fungi or plants to achieve the same purpose." | 0.5 | Intermediate |
| Blind Spots: Diversity and Inclusion | Is your biology working against you?This course will help you understand how our minds create blind spots and subconscious bias, and teach you how to evaluate the subconscious drivers that lead to ethical breakdowns. | 0.5 | Fundamental |
| Blocking and Cribbing for Heavy Equipment | Blocking and cribbing is a phrase which describes a variety of procedures used to stabilize heavy equipment, or large components of heavy equipment, during maintenance. Blocking refers to any of a number of methods for securing a machine, or part of a machine, while it is being worked on. Cribbing refers to the technique of stacking a group of uniform blocks to create a temporary, but sturdy, elevated structure capable of supporting a heavy load. This course describes equipment and guidelines for successful blocking and cribbing operations. | 0.35 | Intermediate |
| Bloodborne Pathogens | "Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. There are a number of relatively simple actions which can be taken to drastically reduce the chance of exposure to bloodborne pathogens. Depending on the type of work being done, workplace practices and methods can be modified to minimize the chance of exposure. Proper personal protective equipment is an important component in preventing the transfer of bloodborne pathogens from an infected person to a healthy person." | 0.43 | Intermediate |
| Bloodborne Pathogens for Custodians | "Maintenance and custodial workers regularly encounter situations where they could be exposed to a bloodborne pathogen. This video, produced especially for custodian and maintenance staff, demonstrates how custodians and maintenance workers can safely clean up spills of blood or other potentially infectious materials without risking exposure. Topics covered also include: What bloodborne pathogens are Diseases that could be transmitted Potential exposure routes How to protect yourself from exposure" | 0.25 | Fundamental |
| Bloodborne Pathogens for Hospitality | "Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In the hospitality industry, which includes hotels and motels, employees may come into contact with blood or other possibly infectious bodily fluids. This can happen when cleaning rooms, stripping beds, and handling laundry. Given the risk of exposure to bloodborne pathogens, this course will cover how workers can recognize the dangers of possible infection, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids." | 0.5 | Intermediate |
| Bloodborne Pathogens for Schools | "Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In an active school environment, younger children are going to get cuts and scrapes as they participate in physical activities. Older students are going to be involved in accidents, fighting, and even drug use. All of these activities present the risk to school staff members of exposure to blood and bloodborne pathogens. This course will cover some of the dangers to staff members posed by exposure to bloodborne pathogens, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids." | 0.5 | Intermediate |
| Bobtailing and Jackknifing | Bobtailing is sometimes necessary but a dangerous method of driving a big rig tractor without any trailing component. This program is designed to train your drivers on the challenges of bobtailing and the dangers of jackknifing. Drivers will learn how the profile, weight dynamics and engine power of the tractor can cause problems without a trailer attached. | 0.25 | Fundamental |
| Boiler Fundamentals | Boilers are commonly used to provide a source of steam for industrial plants. The plant personnel who operate and maintain boilers need to have a good working knowledge of the fundamental principles of boiler operation. They also have to know how to monitor and control the operation of boilers in their plant and the systems associated with the boilers.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boilers: Combustion, Water, and Steam | This course is designed to familiarize participants with some of the equipment and flow paths associated with combustion and steam production in a boiler. After completing this course, participants should be able to describe the parts and operation of typical gas burners, oil burners, and stokers. They should also be able to explain how air flow is produced in a boiler, why the proper fuel-to-air ratio must be maintained, and how air heaters improve the efficiency of boiler operation. Finally, participants should be able to explain how water circulation occurs in a boiler and describe the use of economizers and moisture separators. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions | Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than $150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs | 1 | Intermediate |
| Box Cutter Safety | Box cutters are used in every type of retail environment. Millions of cuts are made with box cutters each day and it only takes a moment of inattention to cause an injury. Regardless of the type of box cutters used, they all can cause serious injuries if not handled properly. This video program is designed to train your employees on the dangers of box cutters as well as demonstrate the steps they can take to remain safe.Topics covered also include:Safe body positioningProper storage of the box cutterBlade disposalSafe blade changing techniques | 0.1 | Fundamental |
| Brain Bites - Email Management | "From a Frustrating Chore to a Powerful Tool Learn How To Make Email Work For You. More than ever before people rely on email in the workplace but we dread the amount of time it takes to read through and respond to all our messages. This course will give you the skills you need to tame your email mountain and use it as the effective tool its meant to be. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce." | 0.5 | Fundamental |
| Brain Bites - Empathy: The Key to Active Listening | "Show that you are actively listening by using empathy. You have probably heard empathy described as "feeling someone's pain", but what if that is not helpful or possible? Empathy is an important skill to improve your active listening and make those around you feel heard. By the end of this course, you will be able to explain and practice empathy by noticing body language, voice, and tone. You will learn to communicate an awareness of what someone else is feeling and be a better active listener using empathy. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Let Them Know You're Listening | "Send the message that you are listening to understand. The truth is, it's easy to not listen. We are surrounded by distractions and the list of reasons we don't listen well is long. So we have to work on listening to make others feel heard—especially at work. By the end of this course, you will be able to describe how to become a better, more active listener through focusing your attention on the speaker and clarifying their message. You will learn to build trust and become more approachable.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Organizing Your Files | "How To Stop Wasting Up To Two Hours Per Day Looking For Information. On average office workers spend one to two hours per day looking for information. Having an organized, searchable file and folder structure makes everyone more efficient and this course will show you how to do it. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce." | 0.5 | Fundamental |
| Brain Bites - Sharing a Workspace | "Learn to safely share a workspace to keep you and your coworkers healthy. The spread of COVID-19 led many offices to institute new rules and guidelines. This type of event underscores the importance of a clean environment in which employees are considerate about sharing space. By the end of this course, you will feel confident about sharing a workspace effectively to keep you and your coworkers healthy and safe. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Staying Safe Online | "Meet the hackers trying to break into your company, and learn how to recognize the ways they try to use you and your colleagues to steal money, data, and more. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Time Management | "Take back your day - learn how to reduce distractions and focus on priorities to get more done. Everyone is given the same twenty-four hours every day. How you use them is up to you, and in this mini-course we'll look at tips from some of the world's top experts in time management, including Stephen Covey, Dave Crenshaw, Peter Drucker, and Tim Ferriss. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.25 | Fundamental |
| Brain Bites - Using Windows 10 | "Learn how to really use the tools in Windows 10 to be more productive. Windows 10 introduced many new tools, and updated others, including Cortana, Task View, Virtual Desktops, the Quick Access Screen, and more. In this mini-course we'll show you how to get around in Windows 10, and how to customize and take advantage of the major features and tools Windows 10 provides. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.75 | Fundamental |
| Brain Bites - Writing Effective Emails | "Send emails that are read, understood, and acted on. Let's face it, email is a fact of life. The average employee in the US receives 125 emails per day. The majority of professionals say email creates tension, confusion, and other negative consequences in their busy work days. This course will help you to be part of the solution by identifying ways to write better and fewer emails, that will also ensure your emails are read, understood, and acted on. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.5 | Fundamental |
| Brain Bites: Microsoft Teams Meetings | "Maximize your meetings with Microsoft Teams. If someone told you you'd be comfortable collaborating and meeting virtually in less than 30 minutes, would you believe them? Believe it! Bigger Brains has a way for you to learn Teams for virtual meetings that are just as easy and collaborative as your in-person gatherings. Thanks to its features and ease of use, Microsoft Teams is quickly becoming the dominant meeting platform for businesses of all sizes. Don't be left behind! We'll take a look at the major features of Teams meetings, including its deep integration with Microsoft Outlook and collaboration tools like Microsoft Whiteboard and PowerPoint. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce." | 0.5 | Fundamental |
| Brayton Cycle Analysis | "The ideal cycle for the simple gas turbine is the ""Brayton Cycle"", also called the Joule Cycle. In this 1-hour interactive online course, the open, simple Brayton Cycle used for stationary power generation is considered. The Brayton Cycle thermal efficiency is also presented (but only for the air as the working fluid) and the thermal efficiency derivation is presented with a simple mathematical approach. The Brayton Cycle is presented in the ""T - s"" diagram and its major performance trends (specific power output and power output) are plotted in figures as a function of compressor pressure ratio, gas turbine inlet temperature and working fluid mass flow rate. In this course, the student becomes familiar with the Brayton Cycle, its components, T - s diagram, operation and major performance trends. This course provides the student with background material regarding basic thermodynamic concepts and a glossary for reference material. It should be noted that this online course does not deal with capital, operational or maintenance costs." | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Browser Security Basics | A large number of cyber attacks target browser activity. This course provides all staff members with an overview of browser security and ways to browse the web safely. Topics include: the types of browser threats, the basics of browser security and safe browsing practices. | 0.25 | Fundamental |
| Building Automation Systems (BAS) Architecture | "BAS: What is it and how does it simplify our lives? Building automation describes the advanced functionality provided by the control system of a building. A building automation system (BAS) is an example of a distributed control system. The control system is a computerized, intelligent network of electronic devices designed to monitor and control the mechanical, electronics, and lighting systems in a building. This interactive online course will discuss the BAS topology and will include topics such as primary and secondary bus, as well as analog and digital input and output." | 0.5 | Fundamental |
| Building Automation Systems (BAS) Operations | "BAS: What is it and how does it help us identify equipment failures and reduce energy? Building Automation System or BAS Operations are one of the most critical tasks for controlling of any building. It allows the facility to quickly identify equipment failures and reduce energy usage by implementing smart controls for the building. This interactive online course is intended for building maintenance, HVAC technicians, and Facility Managers. It will cover the fundamentals of automation equipment and explain how the BAS can assist the user in identifying problems and possible solutions." | 0.5 | Fundamental |
| Building Design and Construction Features for Fire Protection | "Hostile fires are responsible for 3,000 deaths and 16,000 injuries each year. Approximately 100 firefighters die in the line of duty during that same period. In addition to human injury and death, is the property loss which is estimated to be almost $12 billion a year. This interactive online course will teach you the basic, but critical, aspects of how a building design influences the likelihood of a hostile fire and how that same design can mitigate the effects of an emergency fire incident. You will learn about basic building layout, construction components, building materials, fire ratings, occupancy considerations, emergency population management, and passive and active mitigating systems." | 1 | Fundamental |
| Building Information Modeling (BIM) for Contractors | "Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved." | 2 | Fundamental |
| Building Information Modeling (BIM) for Owners and Facility Managers | "Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved." | 2 | Fundamental |
| Building Leadership Capability | As a leader you will have opportunity to coach and mentor others in both official and unofficial capacities. Knowing how to effectively coach and mentor your people is key to both their success and to preparing new leadership to step up. Through application exercises and a rich multimedia process, you will learn the skills to be an effective coach or mentor, and thus be able to build additional leadership capability in your organization. | 0.5 | Intermediate |
| Building Performance: Design Through Operations | How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design. | 1 | Intermediate |
| Business Communication Fundamentals | In the business world, effective communication is an essential part of getting things done specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them what to include and what not to include for that's what dictates how well we communicate. | 0.75 | Intermediate |
| Business Dining Etiquette | Proper etiquette makes a statement about your character and competence as a professional. In this course we'll focus on business dining etiquette and how to present your best self when meeting with clients, colleagues, partners, or even friends. Upon completing this course you will understand proper business dining etiquette for before, during, and after the meal. In addition you will understand common place settings and proper utensils. Finally, you'll learn about proper etiquette when you are hosting a meal. | 0.5 | Intermediate |
| Business Disputes: Alternative Resolutions to Litigation | "Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation." | 1 | Advanced |
| Business Ethics | "Ethics is defined as the discipline dealing with what is good and bad and with moral duty and obligation. Practicing proper business ethics can be more simply stated as doing the right thing at work. Once you become an employee of the company, you become a part of many relationships that require that you behave in a manner that benefits you, those around you, and the company. This module will cover the ethics of your behavior involving relationships within the company and your behavior involving entities outside the company." | 0.5 | Intermediate |
| Business Ethics: Quick Refresh | Designed as a review to supplement a comprehensive business ethics course, you'll start out reviewing the definition of ethics and an understanding of how trust functions in our social interactions. We have an expectation of how others will behave towards us and how we will behave towards them. While engaging with each other, individuals behave unethically in ways that breach shared trust. You'll also look at some of the thinking errors associated with unethical behavior. From there, you will find brief descriptions on the different rules defining business ethics. For the sake of brevity, some information has been omitted, summarized, or simplified. | 0.5 | Intermediate |
| Business Execution: 01-Execution Strategies | Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go. | 1.5 | Intermediate |
| Business Execution: 02-Inspiring Workplace Excellence | When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Business Execution: 03-Turning Ideas into Actions | There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure. | 1.5 | Intermediate |
| Capacitors, Part 1 | Capacitors are used to control and increase the amount of capacitance in electrical circuits. In this course, participants will learn about the principles, function, and construction of capacitors as well as how to calculate capacitance and RC time constants of circuits. | 1 | Intermediate |
| Capacitors, Part 2 | Conditions exist in any transmission and distribution system that result in power losses in the systems and equipment that deliver power and in the systems and equipment that use power. In order to compensate for these power losses, utilities often use devices such as capacitor banks and shunt reactors. This course covers the functions of substation capacitors and reactors as well as how they can be safely cleared, maintained, and tested. | 1 | Intermediate |
| Carbon Tracking/ Reduction Strategies for Facility Design and Operations | "Carbon emissions are increasingly taking center stage at the forefront of sustainability. While concepts like ""net zero energy"" are gaining mainstream traction and help account for the design/reuse of facility's' energy utilization, they do not holistically account for their long-term operational carbon footprints. Often, these footprints represent the largest consequential greenhouse gas emissions associated with the building(s) over their useful life. This interactive online course will introduce the concept of designing for operational carbon tracking and reduction utilizing a case study project - a multi-building urban college campus in metro-Boston. This project was initiated by students and faculty of the school in 2013. This course will introduce team organization, methodology, an overview of the three ""Scopes"", and strategies for ongoing reductions towards the goal of carbon neutrality. This course will be useful for anyone interested in single or multi-building projects where carbon tracking, reduction, and off-setting are a priority." | 2 | Intermediate |
| Carpentry Basics | "Did you know a constantly changing physical environment increases the chances of being injured? Carpentry is a skilled trade in which the primary work performed is the cutting, shaping and installation of building materials, primarily wood, during the construction of buildings and other structures. Carpentry typically occurs in a construction area. This interactive online course will cover some of the skills needed to practice good carpentry." | 0.5 | Fundamental |
| Carpentry Basics: Drywall Repair | In some situations, you may have to repair drywall that has been damaged or repair drywall that was improperly installed by someone else. This interactive online course will explain and describe the tools, materials, finishing techniques and procedures used in repairing drywall. | 0.5 | Fundamental |
| Carpentry Basics: Painting | "Did you know painting involves various factors such as the composition of paint; the various paint systems, and the procedures for preparing a surface and applying the paint correctly? In addition, choosing the proper tools for a job from start to finish is required. This interactive online course will discuss the correct methods, tools, and procedures to perform a good paint job." | 0.5 | Fundamental |
| Carpentry Basics: Tools and PPE | "Hand and power tools must be used properly and maintained at all times. Tools that may have been damaged or do not work properly can be dangerous to use. The tools need to be clean, dry and well-maintained. This interactive online course will explain the different types of hand and power tools used in general repair situations and the proper care and use of them to promote safe practices within your facility." | 0.5 | Fundamental |
| Carpentry Safety | Did you know personal protective equipment is considered the last line of defense? You will be introduced to several hazards and risks associated with performing basic carpentry tasks. Carpentry involves the use of hand and power tools, and equipment, to complete repairs on items such as cabinets, windows, flooring, and other parts of a building structure. This interactive online course will provide recommended safe work practices to avoid injury and illness. | 0.5 | Fundamental |
| Cell Phone Use in the Workplace | "Cell phones have become a standard part of everyday life. They allow us to call or text, find directions, take and share pictures, schedule our lives, deposit money, listen to music, and keep up with social media. While cell phones have many positive aspects, there is a time and place for their use. Using a cell phone improperly at your job site can pose dangers to you and your coworkers. This course will cover these dangers as well as best practices associated with cell phone use." | 0.5 | Intermediate |
| Centrifugal Compressors | This course is designed as a reference tool that participants can use to refresh their understanding of centrifugal compressor components and operation. This course also covers the disassembly and reassembly of a vertically split compressor and the various checks and measurements that are made to compressor components. | 1 | Intermediate |
| Centrifugal Pump Components | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Centrifugal pumps convert external rotational mechanical energy into kinetic energy within a liquid. In a centrifugal pump, this is done by accelerating the liquid from the center to the outer rim of a spinning impeller within a pump casing. This course covers the terminology and function of the mechanical components that make up a typical centrifugal pump. | 0.5 | Intermediate |
| Centrifugal Pump Curves and Theory | A centrifugal pump is a dynamic machine that has performance characteristics which are partially determined by the environment in which it is operating. One of the best ways to display and study the capabilities of a given pump is with a graph called a pump performance curve. A pump performance curve is actually a set of curves showing a number of parameters versus flowrate. Pump curves can be combined with hydraulic requirements, or system curve, to determine the suitability of a pump for a given task. | 0.5 | Intermediate |
| Centrifugal Pump Fluid Mechanics | Pumps convert rotational kinetic energy, such as that supplied by an electric motor, into hydrodynamic energy, or an increased pressure in a fluid required to make it flow. In order to make a fluid flow, energy, or pressure must be supplied to overcome two fundamental obstacles to flow. One obstacle is created when the elevation of a fluid is increased. The second is presented by the need to overcome the internal resistance of a fluid to flow. This course focuses on how these basic hydraulic concepts apply to piping system evaluation and pumping requirements. | 0.5 | Intermediate |
| Centrifugal Pump Operations and Maintenance | Pump operations and pump maintenance are two closely interrelated topics. Poor mechanical pump maintenance will lead to a loss of hydraulic performance and what may appear to be operational problems. Operational decisions which cause the pump to operate outside of its preferred operation region can lead to physical pump damage which could be misinterpreted as a traditional maintenance issue. It is important to determine the root cause of a problem. This course will cover methods for monitoring pump hydraulic operation and methods for observing and maintaining the mechanical condition of a pump. | 0.5 | Intermediate |
| Centrifugal Pump Selection and Sizing | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Pumps have been developed to specifically address a wide range of applications. Selecting the correct pump for a given job can be a daunting proposition. Some pump classifications are based on their hydrodynamic characteristics, some are based on mechanical construction and some are based on compliance with industry standards. In this course, we will help you understand these different classifications and present some of the strengths and weaknesses of the different designs. | 0.5 | Intermediate |
| Centrifugal Pump System Components and Design | The purpose of a pump is to increase the pressure of a liquid and transfer it from one location to another. Although a pump is essential to this goal, it is only one element of a larger system that is required to accomplish liquid transfer. This course will cover some of the mechanical components such as drivers and couplings that support pump operation. It will also cover how the design of a piping system around a pump will affect pump selection and performance. | 0.5 | Intermediate |

VectorSolutions™

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Chain saw Accidents - The Consequences | Chain saw accidents can be devastating and drastically affect your quality of life. In this program, we explain how chain saw accidents can occur, and what the consequences can be. Filmed with visual scenes of injuries to employees who were involved in chain saw accidents, this video hammers home the seriousness of what can happen when using a chain saw, and the importance of following proper safety procedures at all times during chain saw use. By demonstrating the many ways a chain saw accident can occur your employees will walk away trained in how to prevent them. | 0.15 | Fundamental |
| Chain saw Safety | Using a chain saw is something landscape personnel in public works and many other occupations must frequently do. Because of the dangers inherent in chain saw use, it is critical that you operators be properly trained on how to use them. This comprehensive video demonstrates chain saw use by skilled operators. In it, the most important techniques to prevent injuries when using a chain saw are covered. Every chain saw operator can learn something from this easy to understand program. | 0.25 | Fundamental |
| Change Management | Change is a constant in todays world. Business organizations are continually looking to improve performance by upgrading equipment, changing the organizational structure or job roles, or implementing new processes or procedures. The success of any change depends greatly on employees embracing the change. This course discusses several skills and tools necessary for supervisors to lead successful changes. | 0.5 | Intermediate |
| Chemical Unloading Basics | All personnel involved in bulk unloading of chemicals must be properly trained in general safety awareness, equipment function and emergency shut down, hazardous chemicals, personal protection measures, and security. This course will focus on some basic procedures and safety practices for unloading bulk liquid chemicals from tank trucks and railroad tank cars. Totes and drums will also be discussed. | 0.25 | Intermediate |
| Chlorine Dioxide Awareness | This course will cover a description of chlorine dioxide, common uses of chlorine dioxide, PPE and handling requirements, exposure and toxicity, health hazards and effects, and emergency response procedures. | 0.25 | Intermediate |
| Clean And Safe: Restrooms | Clean restrooms are significant. But, this video isn't just about HOW to clean a restroom, its about how to do it SAFELY. What PPE is needed? How can slips and falls be prevented in damp environments? How can you work with chemicals safely? What should be done with broken glass and/or other pointed objects? All of these questions and more are answered in this video designed for both Housekeeping and Facilities personnel. | 0.1 | Fundamental |
| Clean Water Act Section 404 Permits | The Clean Water Act (CWA) protects "waters of the United States" (WOTUS) by prohibiting the discharge of dredged or fill materials without a Section 404 permit. This training provides general guidance for which waters are considered WOTUS, and the requirements for obtaining a Section 404 permit. | 0.75 | Intermediate |
| Clear Communication | Clear Communication is a course designed to familiarize participants with ways to improve their basic communication skills. After completing this course, participants should be able to describe effective methods for improving listening skills, describe ways to ensure that listeners receive a message as the speaker intended, and describe techniques for effectively giving and receiving feedback.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coaching Job Skills: 01-Determining Training Or Coaching | Coaching Job Skills teaches managers, supervisors and team leaders how to successfully coach employees in their jobs. In addition, it will help widen the breadth of skill sets for all employees. | 1 | Intermediate |
| Coaching Job Skills: 02-Your Path to Training New Skills | Learn and apply the five-step process for training your team members on new skills. | 1 | Intermediate |
| Coaching Job Skills: 03-Your Path to Coaching Existing Skills | Learn and apply the five-step process for coaching your team members on existing skills. | 1 | Intermediate |
| Coaching Job Skills: 04-Mastering Training New Skills | Practice Training New Skills in a full scenario situation. | 1 | Intermediate |
| Coaching Job Skills: 05-Mastering Coaching Existing Skills | Practice Coaching Existing Skills in a full scenario situation. | 1 | Intermediate |
| Coaching Job Skills: 06-Health Check | Test your ability to apply Coaching Job Skills concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Coaching with Confidence | LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be for themselves, and for their teams. | 6.5 | Intermediate |
| Coastal Engineering: Tsunamis | What is a tsunami? Tsunamis are destructive natural events that create extremely high storm surge and large waves causing large amounts of erosion, and extensive inundation jeopardizing structures and people along the nation's coastlines where these events can occur. This interactive online course will provide information about the magnitude of tsunami loads, tsunami evacuation shelters, and important issues regarding the placement of structures on tsunami-prone coastlines. Case studies will be included to illustrate techniques that are known to improve building survival of tsunamis. | 2 | Intermediate |
| Cogeneration Systems Essentials | Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits. | 1 | Fundamental |
| Cold Stress | People who are exposed to cold or wet conditions sometimes can't keep their body warm, which leads to cold stress. This course discusses the factors that increase cold stress as well as what frostbite, trench foot, and hypothermia are and how they are treated. This course also illustrates safe work practices to help with the prevention of cold stress. | 0.38 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Collaborative Communication: 01-Communicating to Your Manager | Learn the background key concepts to effective communication to your boss or supervisor. | 1 | Intermediate |
| Collaborative Communication: 02-Your Manager's Communication Style | Identify the medium, frequency, and amount of detail needed to successfully communicate with your manager. | 1 | Intermediate |
| Collaborative Communication: 03-Your Path to Communicating Up | Learn and apply the five-step process for communicating to your boss or supervisor. | 1 | Intermediate |
| Collaborative Communication: 04-Mastering Communicating Up | Practice Communicating Up in a full scenario situation. | 1 | Intermediate |
| Collaborative Communication: 05-Communicating Up Health Check | Test your ability to apply Communicating Up concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Combustible Dusts | It's only DUST! What's the big deal? Under the right conditions, many types of industrial dust, including coal, paper, and wood dust, can ignite and produce a devastating explosion. With our Combustible Dusts course, you'll learn to identify the hazards of combustible dust by using the Dust Fire and Explosion Pentagon. You'll get a clear understanding of dust control and preventions measures as well as dust analysis and explosion risk reduction. Our course will also help identify additional risks and prevention techniques associated with primary and secondary dust explosions. | 0.25 | Intermediate |
| Combustion Analysis | "Today, global warming is becoming more evident and it is being said that it is primarily caused by CO2 emissions. A detailed combustion analysis can be very useful in determining different fuel and technology scenarios that would result in the reduction of current CO2 emissions. Combustion has a high degree of importance in engineering. This 1-hour interactive online course covers complete and adiabatic combustion of carbon, hydrogen, sulfur, coal, oil and gas, with no heat loss, with standard air as the oxidant at stoichoimetric conditions. Six separate combustion cases are covered and basic combustion performance trends are presented" | 1 | Intermediate |
| Commercial Explosives Safety | An explosion is a sudden, violent release of energy accompanied by the expansion of high-pressure gases. An explosive is any chemical compound, mixture, or device intended to create an explosion. This course discusses types of explosive materials and their UN (United Nations) hazard classifications. It reviews common explosion hazards as well as the recommended personal protective equipment. This course illustrates proper material handling, storage security, best practices for blasting operations, and explosives disposal. | 0.43 | Intermediate |
| Commercial HVAC Systems Essentials | When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/maintenance, and management. | 1 | Fundamental |
| Commercial Kitchen Fire Prevention | "Fires are an ever-present danger in a commercial kitchen. But the danger can be controlled and contained by following sound fire prevention principles. This video outlines these principles and trains your employees that properly following them will help in preventing and containing fires in your establishment. This program covers the different types of fire suppression systems as well as how to operate and inspect them. Additionally, the importance of keeping flues and appliances grease-free is reviewed as well as other common sense tips that will help your employees remain safe. It comes with both English and Spanish on one DVD. Topics covered also include: Different types of fire suppression systems, How to operate and inspect these systems, The importance of keeping flues and appliances grease-free, Common sense tips to help employees remain safe" | 0.1 | Fundamental |
| Commercial Plumbing Systems Essentials | This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management. | 1 | Fundamental |
| Commercial Structural and Building Systems Essentials | "This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building Systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects." | 1 | Fundamental |
| Communication Skills for Supervisors | Communication skills are frequently cited as the most important skills for supervisors. To be an effective supervisor, you must be able to communicate with all levels of the organization. Poor communication can have many negative consequences, such as poor performance due to lack of alignment on expectations, and conflicts between individuals. This module will cover some essential skills for communicating effectively, with a focus on communicating with your subordinates. | 0.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Company Layoffs and Downsizing | Layoffs, reduction, downsizing, rightsizing, staff cuts, managing redundancy; any way you say it, the reality is a complex process that impacts a lot of individuals and organizations worldwide. Through application exercises and a rich multimedia process, this course will increase your understanding of how to make this potentially traumatic experience as successful and positive as possible for everyone involved. | 0.75 | Intermediate |
| Compressed Air Systems: Introduction to Performance Improvement | Compressed air is used widely throughout industry and is often considered the 'fourth utility' at many facilities. Almost every industrial plant, from a small machine shop to an immense pulp and paper mill, has some type of compressed air system. In many cases, the compressed air system is so vital that the facility cannot operate without it. This 3-hour online course discusses the basics of compressed air systems including compressor types, power sources used to drive the compressor, types of system controls, compressor system accessories, and uses of compressed air. This US Department of Energy sourcebook that this course is based on is designed to provide compressed air system users with a reference that outlines opportunities for system performance improvements. It is intended to make compressed air system users aware of the performance improvement potential, details some of the significant opportunities, and directs users to additional sources of assistance.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Compressed Gas Cylinder Safety | Prepare yourself and your team to work safely with and around compressed gas cylinders. This course describes compressed gas cylinders and how they are commonly used. Use this course to raise awareness about potential hazards and learn best practices for storage, transport, installation, and use of compressed gas cylinders. Missile hazards and types of compressed gases are also discussed. | 0.38 | Intermediate |
| Compressible Flow Components Analysis | "The ideal subsonic nozzle, diffuser and thrust analysis is presented only for the air as the working fluid. The technical performance of mentioned compressible flow components is presented with a given relationship between temperature and pressure as a function of the Mach Number. This interactive online course provides the compressible flow components T - s diagrams and their major performance trends (stagnation over static temperature and pressure ratio values) are plotted in a few figures as a function of the Mach Number. In this course, you will become familiar with the compressible flow components (nozzle, diffuser and thrust), their T - s diagrams, operation and major performance trends." | 1 | Intermediate |
| Compressors: Centrifugal and Axial | This course is designed to familiarize participants with basic concepts associated with the parts and operation of centrifugal and axial compressors. After completing this course, participants should be able to describe the main parts and the general operation of single-stage centrifugal compressors, multistage centrifugal compressors, and axial compressors. They should be able to describe the functions of compressor lubrication systems, seals, bearings, and common auxiliary devices. | 2 | Intermediate |
| Compressors: Operation of Centrifugal and Axial Types | This course is designed to familiarize participants with basic concepts associated with the startup, operation, and shutdown of centrifugal and axial compressors. After completing this course, participants should be able to describe the general functions of instrumentation and control devices used with centrifugal and axial compressors. They should be able to describe operator responsibilities associated with starting up, operating, and shutting down centrifugal and axial compressors. | 2 | Intermediate |
| Compressors: Positive Displacement | This course is designed to familiarize participants with basic concepts associated with the operation of positive displacement compressors. After completing this course, participants should be able to identify the main parts and describe the general operation of various types of reciprocating compressors and rotary compressors. They should also be able to describe operator responsibilities associated with starting up, operating, and shutting down compressors. | 2 | Intermediate |
| Computer Room Air Conditioning (CRAC) Systems: Design and Operation | "This course is intended to be a primer to help any system operator or maintenance person to better understand some of the aspects and sometimes subtle nuances of computer room A/C systems, as well as the ancillary equipment and systems which normally support the A/C system. This online interactive course is by no means an in-depth study of computer room A/C systems, but strictly an introduction into the specialized world and nature of computer room A/C systems. By studying the fundamental information presented herein, you will gain enough information to be able to assist in keeping your company's computers and servers fully, and reliably, operational." | 0.5 | Intermediate |
| Condensate Recovery and Steam Traps | Whenever steam condenses in a process, it creates hot liquid condensate. It is the role of steam traps to remove condensate from steam lines and process equipment with a minimum loss of live steam. The condensate has economic value, so it is typically collected and reused. This module discusses the collection and re-use of condensate in a steam generation system. Three major classifications of steam traps are discussed, including their principles of operation, and their strengths and weaknesses. | 0.5 | Intermediate |
| Conductors | Running cables and conductors is an integral part of electrical maintenance. The topics covered in this course include how cables and conductors are classified, the factors that must be considered in selecting a conductor or cable for a particular application, and procedures for installing, splicing and terminating cables and conductors used in low-voltage applications. | 1 | Intermediate |
| Confined Space Entry - Permit Required | A confined space is defined as a work area which has sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. Working in a confined space can present hazardous atmospheres and physical dangers to employees. There are two types of confined spaces: Non-permit Required Confined Spaces and Permit-required Confined Spaces. This course will describe the dangers, best practices, and permit requirements necessary when working in a permit-required confined space. | 0.67 | Intermediate |
| Confined Space Entry Awareness | A confined space is defined as a work area which has all of the following characteristics: sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. This course will provide general awareness on confined spaces, differentiate between a permit-required and non-permit required confined space, and describe the job roles and responsibilities involved in confined space entry. | 0.5 | Intermediate |
| Confined Spaces in Construction | This course will define "confined spaces" and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces. | 1 | Fundamental |
| Conflict Management | When people work together, there will inevitably be disagreements. Some of these disagreements are minor, but some can turn into major conflicts. If conflicts are not resolved, they can lead to long-term tension and unhappiness among employees. This course illustrates how to resolve conflicts using the SLOW method, reasons for different points of view, and tips for face-to-face communication. Following the ideas in this course can help your team use conflict situations as an opportunity to solve work or personal problems, and therefore become more productive and unified. | 0.25 | Intermediate |
| Conflict Resolution | Dealing with conflict in the workplace can be difficult. Seeing a person with whom you have issues every day can be challenging and distracting. Resolving conflicts has a major positive effect on the work environment, making it happier and more productive. Having employees with this conflict resolving quality is an important part of creating a productive workplace. This conflict resolution training course highlights the important aspects of resolving conflicts in the workplace. The course offers a myriad of conflict resolution skills and strategies that will help employees better deal with disputes in the workplace. | 0.7 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Conflicting and Non-Existent Accessibility Standards | What do you do when you have conflicting accessibility standards? What about when there are no standards? How do you make sure your building or facility is compliant? This interactive online course will cover these scenarios and help you make sure that you are designing and building for accessibility. | 1 | Fundamental |
| Construction of AC and DC Circuits | This course will define series circuits and parallel circuits as well as series-parallel circuits. This course will also discuss resistance and current in each type of circuit. | 1 | Intermediate |
| Construction Project Documentation: Navigating Pitfalls | "This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education." | 2 | Fundamental |
| Construction Site Stormwater Runoff Control | Construction site activities often disturb or expose soil, which can increase erosion and cause sediment to be picked up and carried off by stormwater runoff. If not controlled, this sediment and other pollutants at construction sites can be carried away and deposited in nearby wetlands, waterways, and fragile habitats. This can harm aquatic plants, fish, and wildlife, and degrade water quality for municipal, industrial, and recreational uses. In the U.S., operators of large construction sites are often required to obtain stormwater discharge permits from the EPA, the state, or local authorities. To begin this process, you must create and implement a stormwater pollution prevention plan (SWPPP). | 0.5 | Intermediate |
| Contactors and Relays | Contactors and Relays is a course designed to familiarize participants with the operation and use of magnetic contactors and relays. After completing this course, participants should be able to describe the operating principles of magnetic contactors and relays, and explain how both types of devices are used in electrical systems. They should also be able to describe the components and operation of low-voltage remote control switching systems. | 2 | Intermediate |
| Conveyor Safety | Conveyors are involved in about 50 deaths in the U.S. every year. When used properly, conveyors can reduce workloads, make production more efficient, and prevent injuries that result from carrying materials manually. This course will discuss the most common types of conveyors and their hazards, the types of guarding around conveyors, general conveyor safety, and what to do during and after an emergency. Taking this course and understanding the hazards conveyors present will help keep you and your co-workers safe. | 0.5 | Intermediate |
| Cooling Basics | Did you know there are two types of cooling systems used in HVAC applications? Cooling systems remove heat from air - sensible heat from the gases in air and latent heat from the water vapor in air - in order to produce the desired temperatures and humidity levels in enclosed spaces. This interactive online course covers sensible heat and latent heat, British thermal units, the three laws of thermodynamics, and the cooling equipment that is used in HVAC systems. | 0.5 | Fundamental |
| Cooling System Maintenance | Cooling systems remove heat from building air in order to produce the desired temperatures and humidity levels in enclosed spaces. These electro-mechanical systems require routine inspections and maintenance to keep them functioning properly. This interactive online course covers how to inspect and maintain cooling system drive belts, and best practices for greasing bearings and cleaning of cooling system coils. | 0.5 | Fundamental |
| Cooling Theory | How do you properly cool a building? Cooling systems are used to cool and condition the air in rooms and building. To do this, they must remove heat from the air. How much heat needs to be removed to reach the desired temperature? What about humidity - the amount of water vapor in the air? Humidity affects how much heat we feel so it must also be addressed. This interactive online course will address these and other cooling system-related topics and issues. | 0.5 | Fundamental |
| Cooling: Hot & Cold Call Basics | "Who turned down the thermostat? Why is it so cold in here?" Individuals who respond to hot and cold calls made by uncomfortable building occupants must have a certain set of skills, including a thorough understanding of the heating/cooling system in question, training in problem-solving or troubleshooting techniques, and people skills. This interactive online course will discuss how to methodically approach cooling system-related complaints and problems, as well as desirable personality traits and useful problem-solving techniques for effective customer service representatives. | 0.5 | Fundamental |
| Co-worker Coaching | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Co-worker Coaching human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Crane and Hoist Rigging Safety | Definition of rigging and slings, importance of safe rigging, load considerations, types of slings, types of sling hitches, safe rigging practices, and commonly required personal protective equipment (PPE). | 0.53 | Intermediate |
| Crane Hand Signals | Clear and consistent communication between a signal person and a crane operator is essential for safe crane operation. The use of standard hand signals will ensure there are no misunderstandings between the signal person and the crane operator. This module will cover standard hand signals that can be used for most crane operations. | 0.25 | Intermediate |
| Crane Lift Planning | When involved with a lift have you ever asked yourself, "I wonder if the crane is big enough?" or "Is the rigging set up properly?" or "Is it safe to move loads over or under a power line?". If you have thought of questions like these, then chances are there was too much risk in the lift. In this interactive online course we will cover, why lift planning is important, when a plan is needed, and who prepares the plan. We will also discuss the key roles and responsibilities associated with crane lifting activities and identify what information is contained in a lift plan. Then we will cover the purpose and value of a pre-lift meeting and the function of 3D computer modeling software in creating a lift plan. | 0.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Create a Windows App Using Free Tools and No Coding | Won't it be cool to create your own app? There is so much joy in seeing your app published or finding unique ways to share your content. Although, many of us do not have coding knowledge or simply do have the time to learn a programming language. Those obstacles should not stop us for publishing our ideas and content. Nor should the barrier of expensive development costs - either in the form of programmers or software tools or web services. This course is aimed at those who may or may not have content created but are unable to share their content via mobile or desktop apps because of time, costs, or IT resources and has been put together to show you how you can accomplish your goal of creating and publishing your own app without enduring the pain of learning a complicated code or paying additional fees. The course begins with the concepts and the design considerations one might think about when developing their app. And since this course uses whatever free resources are currently available, time is spent discussing the limitations present. After framing the design and objectives, the course creates apps step by step. The course builds upon itself as it progresses. The learning starts simple and then adds more complex content. At the end - and actually even at points up to the end - you will have your very of Windows app to share, use, and publish in the Windows store. There are options to port your app over to other operating systems and platforms briefly discussed at the end. You will have the pride and joy of knowing you accomplished something great. It will open your mind to all the possibilities that await and ignite your creative and problem solving drive. Ready? Let's build something.' | 2.5 | Intermediate |
| Creating a Code of Conduct | Ever wonder if a certain behavior is appropriate or out of bounds? Perhaps it is appropriate in one setting, between certain people, but not appropriate in another setting. Well, wonder no more! This course will take you through the steps to determine appropriate conduct and to navigate tricky or touchy ethical situations. To do or not to do . . . that is the question employs application exercises and a rich multi-media process, to increase your awareness and understanding and to provide you with a guide to navigate the sometime murky waters of ethics and appropriate code of conduct. | 0.5 | Intermediate |
| Creating Word Templates | "Don't re-create documents over and over! Learn about templates in Word to increase your productivity, save time, and create consistency.<br>Being able to consistently create documents that have a uniform look and adhere to company standards can be challenging and time consuming. Use the templates feature in Word to do this effortlessly. Learn basics about effective design and using headings, sections, and your company's logo, fonts, and colors to produce professional and effective documents that will stand out!" | 0.5 | Fundamental |
| Critical Facilities - Emergency Electric Power | "Providing emergency electric power is of critical importance for several types of facilities, and can be mandated by regulatory agencies. For example - emergency egress lighting, hospital emergency rooms, cooling for medical supplies storage, and protection from interruption of public utilities. These systems also help in preventing significant economic losses and, in some cases, disastrous results from natural events.<br>This course presents key information regarding emergency electric power. Included in the topics covered are emergency vs. standby systems, applicable codes, terms and definitions, system components, environmental considerations, and fuel systems. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information extremely valuable." | 2 | Fundamental |
| Critical Thinking and Problem Solving | Are you constantly firefighting? Does it seem as though problems always appear at the last minute or just before the weekend? In this course, you will learn strategic steps to prevent much chaos and solve new or recurring problems. Through the use of application exercises and rich multimedia process, your ability to think critically and solve problems effectively and in a timely manner will increase thus propelling your end results to new heights. | 0.6 | Intermediate |
| Crystalline Silica Awareness | "Crystalline silica is a form of silicon dioxide which occurs naturally in the Earth's crust. When it is broken up by high energy activities into small airborne respirable particles, it can cause serious health hazards when inhaled. The symptoms caused by inhalation may not be immediately apparent. It is critical that individuals working around crystalline silica are knowledgeable of its physical properties, understand its safety risks, and know how to effectively avoid exposure. With the proper protective measures, training, and PPE, exposure to respirable crystalline silica can be reduced to the point that it is no longer a health threat to those who must work around it." | 0.5 | Intermediate |
| Cut and Puncture Wound Prevention | Workplaces are full of cut and puncture wound hazards. Some cuts are minor and can be simply addressed by those trained in first aid; others require a trip to the emergency room. This course discusses how to treat cuts and puncture wounds, and more importantly, how to prevent even minor injuries from occurring in the first place. | 0.5 | Intermediate |
| Cybersecurity Awareness for Business Leaders: Creating A Cybersecurity Culture | With today's wide range of threats, it is a must to ensure minimum standards of security. We often think that purchasing expensive security appliances can take care of it, but it's not even close. In this course, we learn the importance of injecting a cyber security culture in the mind of the people, executives and employees, understanding the roles of each department and key people to sustain the program, how to lead our teams for a more secure digital life and finally the importance of yearly training in maintaining constant secure environment. | 1 | Fundamental |
| Cybersecurity Awareness for Business Leaders: Incident Preparedness and Management Planning | "Maybe there is no way to eradicate threats and incidents completely, but surely being prepared and ready to anticipate incidents, can make the difference in limiting the damages.<br>In this online training we will identify the best practices to mitigate incidents, different types of cyber security insurance; how to get our team ready for attacks and how to effectively manage the crisis when an incident occurs. Moreover, we will learn the importance of post-event crisis management." | 0.5 | Fundamental |
| Cybersecurity Awareness for Business Leaders: Laws and Global Compliance Standards | When it comes to compliance, business and corporate management should keep a close eye at being obedient to all of the legal laws and regulations in regards to how they manage the business and preserving their data. In many cases, deviations from the baselines has cost businesses huge penalties and fines, as well as delayed losses; therefore, in this training, we will be looking at regulations and their importance, key items to secure our business and personal data. | 0.5 | Fundamental |
| Cybersecurity Awareness for Business Leaders: Safeguarding Against Social Engineer Attacks | Social engineering has become the favorite tool for hackers to target and breach sophisticated networks, it remains an open window in almost every environment. in this course we will gain knowledge about the latest social engineering techniques and how hackers can obtain business and personal information about us to craft targeted attacks that may result in huge damages. We will learn also to identify intellectual property and how to safeguard it. | 0.5 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Cybersecurity Awareness for Employees: Classifying and Safeguarding Data for Corporate and Personal Use | Failing to become cyber aware, failing to put measures in place that will protect our devices and network is also failing to protect our personal information, our place of business, and our customers. In this interactive online course we will discuss why classifying and safeguarding data is a priority that must not be ignored. We will also list the main types of classifications and state objectives for securing data. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: End-User Best Practices | We live in a busy, busy world. When it is so easy to connect to the internet and access vast amounts of information, it is easy to forget the dangers that lie in wait. From hotspots to password management, this interactive online course will walk you through end-user best practices. We will also discuss the importance of administrative rights, define types of physical attacks against privacy, and recommend ways to protect against malwares and viruses. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: Security Awareness Essentials | In our digital world today, attackers seem to be lurking behind every click of the mouse or tap on the screen. Many people forget that they are the keepers of their own security safety and the security safety of the institutions for which they are employed. In this interactive online course, we learn about the who, what, how, and why of security attacks. We discuss the potential losses associated with a successful security breaches by hackers and will understand the different way in which those security breaches can occur. Finally, we cover important actions you can take within your organization to limit security risks. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: Social Engineering | Social engineering is the art of extorting information from employees that can assist a hacker to breach the security of an organization and can be done by a human or it can be done digitally. In this interactive online course we will define phishing and identify common features, examples, and how to avoid phishing scams. We will also discuss identity theft and how to protect against it. | 0.5 | Fundamental |
| Cybersecurity Overview | The convenience of web access makes it easy to forget that we need to protect and care for our information. This introductory course provides an overview of cybercrime and cybersecurity, including the basics of cybersecurity along with the effects of cybercrime, the types of cyber threats and how users are susceptible. | 0.25 | Fundamental |
| Dangers of Distracted Driving | Driver distraction has become a serious problem, and unfortunately, seems to be increasing. Think about the last time you drove or rode in a car. Did you notice other distracted drivers? Or, were you distracted while driving? Even though most people know distracted driving is risky, they still become distracted while they drive. This course will describe why distracted driving is risky and identify strategies to reduce distracted driving. | 0.25 | Intermediate |
| Data Centers: Operations & Maintenance, Upgrades, and Expansions | "<br>If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turnover, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a "lights-out" data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations & Maintenance, or "O&M" program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later. In addition to a robust O&M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over $100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena." | 1 | Intermediate |
| Data Centers: Trends, Technologies, and Efficiencies | Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are. | 1 | Intermediate |
| DC Fundamentals Review | The fundamental relationships between current voltage and resistance in direct current (DC) circuits are basic to understanding all types of electricity and electrical circuitry. This course is intended as a general review of basic electrical concepts and circuit analysis for participants already possessing some background in electrical theory. | 1 | Intermediate |
| DC Generator Basics | A simple direct current (DC) generator consists of an armature coil with a single turn of wire. The armature coil cuts across the magnetic field to produce a voltage output. This course describes commutation in a DC generator, the major parts of a DC generator, and three basic ways a DC generator can be constructed. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 1 | This course provides participants with an introduction to direct current (DC) motor controller classification and parts identification, controller diagram symbols and schematics, and how DC motor controllers change motor speed and direction. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 2 | This course introduces participants to the basic steps for troubleshooting a direct current (DC) motor controller, different types of controller diagrams and how to read them, methods for identifying mechanical problems, and the maintenance needed to prevent or correct these problems. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| DC Motor Maintenance | Anyone who is responsible for maintaining direct current (DC) motors in an industrial facility has to have a thorough understanding of the specific techniques and procedures that are used to keep DC motors in top operating condition. Familiarity with the ways that DC motors operate and the methods used to classify and identify them is also important. To help prepare electrical maintenance personnel for working on DC motors, this course contains specific information covering DC motor operation and classification as well as detailed descriptions of procedures for troubleshooting, disassembling, inspecting, and reassembling a typical DC motor. | 1 | Intermediate |
| DC Power in the Data Center | Alternating Current (AC) power has been the default for data centers due to many factors, such as equipment availability and familiarity. As companies and agencies push for better energy efficiency, Direct Current (DC) power may become a more viable choice for energy, reliability, and availability of a data center. This course walks through a typical data center power chain then compares using DC power with discussion on five of the most typical DC power voltages in use today. | 1 | Intermediate |
| Decision Making | Decision Making is a course designed to familiarize participants with techniques for making informed decisions and implementing them successfully on the job. After completing this course, participants should be able to describe common examples of poor decision making, describe some general types of decisions, describe several questions that should be asked before a decision-making process begins, explain how to define the desired outcome for a decision, and describe how to gather information to make an informed decision. Participants should also be able to describe how to build consensus during the decision-making process, explain how to use an impact/effort grid and weighted voting in the decision-making process, and describe the steps for successfully converting a decision into action.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Delivery Truck Maintenance | "Many businesses depend heavily on their fleet of vehicles. In some businesses, such as package or propane delivery, or taxis, the fleet really is the business. In other cases, such as trades like electricians and plumbers, the vehicle is somewhat secondary to the actual job being performed, but no less important. In order for businesses which rely on vehicles to thrive, those vehicles which make up the fleet need to be able to operate safely and properly as close to 100% of the time as possible." | 0.5 | Intermediate |
| Design of Utility Infrastructure | Utilities and their infrastructure are one of the main facilities that support our modern society. From drinking water to telecommunications, underground utilities provide the basic services for our communities. Thus, their design is a critical component of construction projects. Through this interactive online course, engineers, architects, planners and contractors will learn design criteria for the design of different utility types, from gravity to pressurized flow facilities. | 2 | Fundamental |
| Designing and Specifying Pervious Concrete | This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydrologic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast. | 2 | Intermediate |
| Designing Beautiful Documents | "Create perfect documents with five easy techniques.<br>Have you ever noticed that some documents look perfect? They have a certain polish, a certain style, that tells everyone who sees them that THIS was created by a professional?<br>There is a science to creating beautiful documents. In this course, communications guru Jamie Gillenwater demonstrates the five techniques that anyone can use to create beautiful, professional, respectable documents." | 0.5 | Fundamental |
| Designing Foundation Repairs | What is causing that crack in the building? How can you repair it? Building foundations provide structural support to buildings but are often damaged and rendered nearly useless by many natural events (hurricanes, drought, excessive rain, etc.). Most foundations can be repaired and returned to their original load capacity, but each foundation damage case can present unique challenges depending on the extent of damage, the foundation material used, the foundation depth in the ground, and the loads being carried by the foundation. In this interactive online course, we will discuss different types of building foundations and several types of causes of foundation failures. We will also cover methods for foundation repair, as well as new materials and technologies used in repair. | 2 | Intermediate |
| Designing PEX Plumbing Systems to Optimize Performance and Efficiency | What is PEX and how should you best utilize it in your project? Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide superior reliability, durability and safety. This interactive online course will demonstrate how the properties of PEX tubing can improve the health, safety and welfare of building occupants through reliable long-term delivery of clean water without pipe degradation. Many designers layout PEX plumbing in the same way as copper plumbing systems, without taking advantage of the material flexibility, and increasing installation costs. Other designers use too much pipe, potentially delaying delivery of hot-water to fixtures. Therefore, this course will also explain how PEX systems allow designers to reduce materials, save installation time, and provide faster delivery of hot-water to fixtures by comparing 12 design examples. Finally, using empirical test data generated by NAHB-RC (now Home Innovations Research Labs) comparing various PEX designs, this course will also provide answers about the best ways to design PEX plumbing systems to optimize performance. | 1 | Fundamental |
| Developing an Employee Safety Training Program | People working in facilities, and in industry, need a solid foundation with respect to safety training, and leading people, and employees. So, this course will provide you with that solid foundation that will help you in developing a valid, and detailed, safety training program for your group. This program can then be applied to your organization's specific safety program's requirements for employee training. This course will provide you with information on Emergency Action Plans, Medical Emergency Plans, Lockout/Tagout requirements, Confined Space Entry Procedures, and other critical topics. | 1 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Developing and Implementing an EPA RMP | "Any facilities that manufacture, use, store or otherwise handle certain extremely hazardous chemicals will be subjected to the EPA's Chemical Accident Prevention regulations at 40 CFR part 68.To comply with this regulation, a facility must develop and submit an EPA Risk Management Plan, or RMP, and implement it in the facility. The primary goal of an EPA RMP is to protect communities from the release of toxic or flammable chemicals that are prone to cause immediate, serious harm to public and environmental health. Thus, it is important for the practitioners to have in-depth knowledge on how to develop an EPA Risk Management Plan so it can be applied in their respective facilities.<br>This course will provide the practitioners and participants with an overview of the EPA Risk Management Plan, the history of the RMP Rule, and requirements for compliance with the EPA's 112(r) Risk Management Program rule (40 CFR Part 68). The different program levels of an EPA RMP will be discussed, in addition to steps for developing a Risk Management Plan. The course will also address the differences between OSHA PSM and EPA RMP Program Regulations, different elements of a RMP Plan, and how to conduct a hazard assessment. Details on dispersion modeling and consequence modeling and the selection and application of these models will be covered in this course, as well as risk communication strategies and the requirements for an Emergency Response Program." | 2 | Fundamental |
| Developing Performance Goals & Standards: 01-The Value of Planning | Experience the importance of planning and developing goals for your team. | 1 | Intermediate |
| Developing Performance Goals & Standards: 02-Creating Performance Standards | Identify and set performance standards that are S.M.A.R.T. (specific, measurable, attainable, results-oriented, and time-framed). | 1 | Intermediate |
| Developing Performance Goals & Standards: 03-Your Path to Developing Performance Goals and Standards | Learn and apply the five-step process for setting and discussing team member performance goals. | 1 | Intermediate |
| Developing Performance Goals & Standards: 04-Mastering Developing Performance Goals and Standards | Practice Developing Performance Goals and Standards in a full scenario situation. | 1 | Intermediate |
| Developing Performance Goals & Standards: 05-Developing Performance Goals and Standards Health Check | Test your ability to apply Developing Performance Goals and Standards concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Developing Your Leadership Style | Want to know all the details? Prefer to oversee? Like to be involved? Everyone has a different style, whether in dress and music or in leadership. In this course you will learn to identify your personal leadership style and how to incorporate your style into any role through the use of application exercises and a rich multimedia process. Knowing your style will allow you to be more effective in choosing team members, managing up or down, and in getting your own work done. | 1 | Intermediate |
| Diagrams: Blueprints | This course is designed to familiarize participants with the basic features of construction blueprints. After completing this course, participants should be able to describe various types of blueprints, identify lines, symbols, and abbreviations that are commonly found in blueprints, and explain how to properly care for blueprints. | 2 | Intermediate |
| Digital Transformation: Benefits of a Digital Corporate Culture | When we talk about digital transformation, we usually think about the adoption of modern devices, changes in corporate processes, or the development of a new business model. However, we don't usually think about how the workforce will respond. Regardless of what industry the organization operates in, or what the current culture looks like, having a digital corporate culture can benefit an organization. This course will highlight some of these benefits. | 0.2 | Intermediate |
| Digital Transformation: Challenges Organizations Face by Not Embracing Technology | Some organizations view digital transformation as costly, unnecessary, time-consuming, and not worth the investment. Others admit to not being able to grasp the complexity of the technology. While these concerns are understandable, not embracing digital tools can create challenges for organizations. This course will highlight and discuss several of these challenges. | 0.2 | Intermediate |
| Digital Transformation: Five Ways a Digital Transformation will Alter Day-to-Day Operations | When integrating digital technology into a business infrastructure, its important to understand how it will redefine the organization from the inside out. A digital transformation is disruptive. The shockwaves it sends throughout the organization will be felt by executives, employees, business partners, customers, clients, and potentially the public at large. To better understand what changes an organization may face, this course will discuss five ways a digital transition will alter day-to-day operations. | 0.2 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Digital Transformation: Four Areas to Consider When Evaluating a Digital Transformation | "Digital transformation may mean rethinking things from the ground up and implementing digital technology where necessary. This might require a careful analysis of all areas to determine what systems will improve productivity and fuel corporate growth. To get started, here are four areas that organizations should consider: Communication, Productivity, Marketing, Security " | 0.2 | Intermediate |
| Digital Transformation: Four Steps to Implementing a Digital Transition | Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition its important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course. | 0.2 | Intermediate |
| Digital Transformation: Things to Consider Before Making Changes | All organizations need a digital transformation strategy. However, don't fall into the trap of thinking that this is accomplished by simply adding more technology. Before creating a strategy, it's important to consider the impact the transition will make both inside and outside the organization. This course will discuss four things to do before making changes. | 0.2 | Intermediate |
| Digital Transformation: What is Big Data? | Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course you'll learn what this means for businesses and how Big Data is already transforming different industries. | 0.2 | Intermediate |
| Digital Transformation: What is Blockchain? | Bitcoin, Ethereum and other cryptocurrencies made headlines in 2017 and 2018 and began disrupting commerce, finance, and currency in a variety of ways. The technology behind cryptocurrency is known as blockchain, and it has created fresh opportunities for businesses and financial institutions around the world. In this course you will learn about how blockchain works, why its gaining popularity, and how its being used in organizations today. | 0.2 | Intermediate |
| Digital Transformation: What is Digital Transformation? | Changes in technology continue to shape our day-to-day lives and alter the way we interact with the world around us. Changing technology has also prompted - and sometimes forced - organizations to restructure the way their business operates. These changes made by organizations to integrate developing digital processes is known as Digital Transformation. In this course, you'll learn more about what Digital Transformation is, and how its impacting almost every organization. | 0.2 | Intermediate |
| Digital Transformation: What is the Internet of Things? | We live in a connected world where devices can connect to the internet and send information to people, devices and systems. This network of connected things is known as The Internet of Things or IoT. In this course you will learn how the Internet of Things is evolving and explore the different areas where IoT is having the biggest impact. | 0.2 | Intermediate |
| Direct and Alternating Current | Most electric power is generated and consumed in the form of alternating current (AC), and most meters that measure energy consumption are designed to measure AC power. Many of the principles associated with direct current (DC) circuits also apply to AC circuits. This course describes variations that account for differences between DC power and AC power. | 1 | Intermediate |
| Direct Digital Controls (DDC) Building Automation Basics | Did you know a building automation system allows building related equipment to be centrally monitored, adjusted and controlled? Building automation systems take in analog and digital information from sensors, make decisions based on time of day and desired setpoints, and send commands to controllers and actuators. Centralized programming and control optimize building energy usage and occupant comfort. This interactive online course covers how maximum use of the various components of a BAS system can produce cost saving opportunities for your facility. | 0.5 | Fundamental |
| Disabilities in the Workplace | A disability is defined as a physical or mental impairment that substantially limits one or more of a person's major life activities. Employers often struggle with how to respond and cope with workers with disabilities, but learning the basics about etiquette, as well as rights and responsibilities as outlined by the American Disabilities Act, or ADA, can make the situation better for everyone. This course describes the ADA, the benefits of hiring workers with disabilities, types of disabilities, reasonable accommodations, interviewing and etiquette, as well as how to prevent and deal with discrimination. | 0.5 | Intermediate |
| Discipline | Discipline is a course that provides participants with guidelines for preventing discipline problems and presents some techniques for dealing effectively with discipline problems when they arise. After completing this course, participants should be able to describe ways in which supervisors affect discipline in the workplace, reasons why discipline problems occur, ways of preventing discipline problems, ways of handling discipline problems once they arise, and the basic steps for using positive discipline and progressive discipline.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Discrimination in the Workplace | 100,000 charges of workplace discrimination are filed every year. Workplace discrimination is the unfair or illegal treatment of a person based on their race, color, religion, sex, national origin, age, or disability. Discrimination amongst employees can contribute to a hostile work environment and negative company culture, leading to lower efficiency and high employee turnover. This course raises awareness by discussing the civil rights laws protecting people from discrimination, the types of discrimination, and how discrimination can affect the workplace. | 0.25 | Intermediate |
| Discrimination Prevention | Discrimination is a big deal. Regardless if you are the one being discriminated against, the one doing the discriminating, or if you are seeing it happen around you, discrimination is real and it can be a serious problem. In 'Dealing with Discrimination in the Workplace' you will learn the steps to 1) help you recognize when discrimination is occurring, 2) identify how to acknowledge the situation, and then 3) know how to proceed to eliminate the problem. Through the use of application exercises and a rich multimedia process, you will gain the skills you need to truly identify, address, and deal with discrimination. | 0.5 | Intermediate |
| Distillation: Control Systems | "What are the goals of a distillation system? Simply put, they are to maintain an optimum production rate and to meet specifications that are set for its products.<br>In this interactive, online course, you will examine various factors that must be controlled if a distillation system is to meet its goals, and you will see how control systems provide the control that's needed.<br>During operation, different balances must be maintained and you must understand process temperatures, how they can affect the distillation process, and how they can be controlled. The final component is product composition; you will discover how the compositions of a distillation system's products are controlled." | 0.5 | Intermediate |
| Diversity in the Workplace | Diversity is acknowledging, accepting, and respecting differences among people. These differences can include age, class, race, and gender. Companies can increase their creativity and openness to different ideas by building and encouraging a diverse workforce. This course covers the definition and benefits of diversity, the challenges in a diverse workplace, and how employees can be proactive and positive on a daily basis to promote the differences between workers. | 0.25 | Intermediate |
| Doors and Hardware Basics | Do you know how to fix a door that is sticking? How about one that closes too fast? This interactive online course will describe the fundamentals of commercial door hardware and provide the knowledge to perform basic troubleshooting and repair techniques for some common problems. | 0.5 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Doors and Hardware Maintenance and Repair | Commercial doors must be strong and durable to withstand frequent use, and like any other building component, they require maintenance to keep them functioning correctly. This interactive online course will discuss door and door hardware maintenance and repairs associated with commercial building installations. | 0.5 | Fundamental |
| DOT Alcohol and Drug Testing for Drivers | Employees of DOT-regulated employers who perform or could perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes over 12 million workers employed as airline pilots, bus drivers, commercial truck drivers, crew members on cargo ships, train engineers, and many others. Employers are required to implement a Drug and Alcohol Program and provide clear explanations of company policies and DOT testing regulations. They must also employ a Designated Employee Representative (DER) to administer the program, receive test results, remove employees from safety-sensitive duties when required, and answer questions about the program and testing process. | 0.75 | Intermediate |
| DOT CSA Awareness | The FMCSA implemented the Compliance, Safety, and Accountability (CSA) program to improve the safety of commercial motor vehicles on public roadways. This program uses performance and compliance data from roadside inspections, State-reported CMV crash records, carrier safety investigations, and carrier DOT registrations to focus FMCSA resources on the carriers who pose the greatest safety risk. Through compliance, the CSA program allows carriers and drivers to rectify safety concerns before crashes, injuries, or fatalities occur. | 0.75 | Intermediate |
| DOT ERG Introduction | The Department of Transportations Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries. | 0.25 | Intermediate |
| DOT Hazmat - General Awareness | Regulations related to the transportation of hazardous materials are contained in Title 49 of the U.S. Code of Federal Regulations (CFR). The Hazardous Materials Regulations (HMR) in Parts 171-180 of Title 49 regulate the transportation of hazardous materials in commerce by motor vehicle, rail car, aircraft, or waterborne vessel. The HMR include classification, labeling, packaging, handling, loading and unloading requirements, in addition to standards for hazmat training, incident reporting, hazard communication, and security. | 0.75 | Intermediate |
| DOT Hazmat - Highway Carrier Loading and Unloading Requirements | The Hazardous Materials Regulations (HMR) apply to the transportation of hazardous materials in commerce. This includes the movement of these materials, plus all associated loading, unloading, and storage activities. Part 177 of the HMR contains requirements related to the transportation of hazardous materials by private, common, and contract for hire motor carriers. These carriers must also comply with several other Parts of the HMR, and many requirements of the Federal Motor Carrier Safety Regulations (FMCSR). | 0.5 | Intermediate |
| DOT Hazmat - Highway Carrier Segregation Requirements | Certain hazardous materials must be separated from each other during transportation in a manner that prevents commingling if a package failure or leakage were to occur. The segregation requirements for highway hazmat shipments are contained in Section 177.848 of the HMR. These requirements apply only to the Hazard Classes and Divisions listed in the HMRs Segregation Table and only if the materials are in packages that require labeling or placarding, a compartment within a cargo tank, or a portable tank loaded in a container or vehicle. | 0.5 | Intermediate |
| DOT Hazmat - In-depth Security | The 2010 Pipeline & Hazardous Materials Safety Administration (PHMSA) Security Rule requires commercial shippers and carriers of certain types and quantities of hazardous materials to implement a Hazardous Materials Safety and Security Plan (a.k.a. “Security Plan”). This course identifies the types and quantities of hazardous materials that are covered by the rule, lists the required elements of and record keeping requirements for Hazardous Materials Security Plans, describes the three types of security that must be addressed by a Security Plan (personnel, route, and unauthorized access), and describes the general and in-depth training requirements for hazmat employees. | 0.6 | Intermediate |
| DOT Hazmat - Labeling | The packaging used to secure hazardous materials during transport typically contains markings and labels to indicate that it contains a hazardous material. The purpose of marking and labeling is to communicate the hazards and risks of the materials being transported to anyone who could potentially be exposed to them. Labeling refers to the placement of primary and, if applicable, subsidiary hazard labels on the outer package. DOT labeling requirements are contained in Part 172, Subpart E of the HMR. | 0.75 | Intermediate |
| DOT Hazmat - Marking | The packaging used to secure hazardous materials during transport typically contains markings and labels to indicate that it contains a hazardous material. The purpose of these markings and labels is to communicate the hazards and risks of the materials being transported to anyone who could be exposed to them. All markings must be legible and durable; clearly visible; written in English; printed on or affixed to the package surface or a label, tag, or sign; and placed away from other markings (such as advertising) that could substantially reduce their effectiveness. DOT marking requirements are detailed in Part 172, Subpart D of the HMR. | 0.75 | Intermediate |
| DOT Hazmat - Packaging | The primary function of hazmat packaging is to ensure that hazardous materials remain intact and secure during transportation. All packaging must be designed to ensure that under normal conditions, the contents will not be released and the packaging effectiveness will be maintained as it experiences typical physical stresses, including shocks, vibrations, temperature extremes, and changes in humidity and pressure. The Hazardous Materials Table (HMT) in Section 172.101 of the HMR can be used to determine the non-bulk and bulk packaging requirements, and any conditions for packaging exceptions, for hazardous material shipments. | 1 | Intermediate |
| DOT Hazmat - Placarding | The DOT requires marking, labeling, and placarding of hazardous materials being transported in commerce to, from, or within the U.S. The term placarding refers to the placement of large durable versions of hazard labels on transport vehicles, bulk packages, freight containers, unit load devices, and rail cars. The purpose of marking, labeling, and placarding is to communicate the potential dangers of hazardous materials. Placards are especially important to emergency responders, who use this information to initiate protective actions after an incident or accidental release. | 0.75 | Intermediate |
| DOT HAZMAT - Safety Training | “Over 4 billion tons of hazardous materials are transported in the U.S. every year. Due to their inherent risks to life, property, and the environment, the U.S. DOT established the Hazardous Materials Regulations (HMR) to cover the classification, labeling, packaging, and handling of hazardous materials. They also regulate hazmat training, incident reporting, hazard communication, and security. This course describes existing regulations for the transport of hazardous materials in commerce in the U.S., including the Hazardous Materials Table (HMT).” | 0.5 | Intermediate |
| DOT Hazmat - Security Awareness | In 2010, the Pipeline & Hazardous Materials Safety Administration (PHMSA) published a rule modifying the security requirements for the commercial transportation of some hazardous materials. This rule requires shippers and carriers of certain types and quantities of hazardous materials to implement a Hazardous Materials Safety and Security Plan (a.k.a. Security Plan) and provide additional security training to employees. Among other things, they must ensure subject hazmat packages and containers are properly closed and secured, select routes that will minimize damage to or from hazardous materials, conduct background investigations on new employees, confirm the adequacy of carrier Security Plans, and integrate all aspects of the security rule into their normal business activities. | 0.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| DOT Hazmat - Shipping Papers | Shippers of hazardous materials including hazardous wastes, hazardous substances, and marine pollutants must prepare and certify shipping papers before offering these materials for commercial transportation to, from, or within the U.S. Shipping papers identify and classify the hazardous materials being shipped, and notify shippers and carriers of their hazards. They help define the protective measures necessary to protect employees, the public, and the environment, and can provide critical information to emergency response personnel. | 0.75 | Intermediate |
| DOT Hours of Service Compliance | The goal of the FMCSA Hours of Service (HOS) regulations is to improve public safety by keeping fatigued commercial motor vehicle drivers off the roads. These regulations apply to motor carriers and CMV drivers who engage in interstate commerce, and they are designed to ensure that drivers have enough time off to get the rest they need on a daily and weekly basis. The HOS rules are necessary because people are not good at judging their own drowsiness. They have been revised several times as our understanding of fatigue improves. | 0.75 | Intermediate |
| DOT Reasonable Suspicion Supervisor Training - Alcohol | Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employees appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of alcohol misuse. This course describes the purpose of DOT testing regulations, defines reasonable suspicion, lists the signs and symptoms of alcohol use, and describes best practices for conducting reasonable suspicion interviews and alcohol testing. | 1 | Intermediate |
| DOT Reasonable Suspicion Supervisor Training - Drugs | Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employees appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of DOT-prohibited drug use. This course describes the five DOT-regulated drug classes, including their signs and symptoms of use, the types of observations that can be used for reasonable suspicion drug test determinations, and what happens during a reasonable suspicion interview, specimen collection, and drug testing. | 1 | Intermediate |
| DOT Roadside Inspections | Specially trained inspectors use procedures and criteria from the CVSAs North American Standard Inspection Program to conduct roadside inspections of CMVs and CMV drivers in the U.S., Canada, and Mexico. This program identifies the critical inspection items and unsafe conditions that can place vehicles or drivers Out-of-Service, and it ensures a uniform and reciprocal inspection and enforcement process in North America. This course details the roadside inspection process and eight inspection levels, lists the violations that can place a driver or vehicle Out-of-Service, and give some tips on avoiding and surviving inspections. | 0.25 | Intermediate |
| Drinking Water Quality - Monitoring & Security | "It's understood that drinking water should be suitable for human consumption and for all usual domestic purposes. So, what is suitable drinking water? Ideally, drinking water should not contain any microorganisms known to be pathogenic or capable of causing diseases. It should be free from chemical contamination, and it should have the right physical properties.<br>In this interactive, online course, we will discuss key information regarding drinking water monitoring and security required to ensure the health, safety, and welfare of the general population being served by water supply facilities. We will discuss the minimum parameters recommended for monitoring drinking water, and the surveillance process and products used for monitoring water quality. We will also discuss the types of threats to facilities, and types of physical security elements that may be put into place to help protect these facilities." | 1 | Fundamental |
| Drinking Water Quality - Water Treatment Technology | Safe drinking water supplies are crucial to the health, safety, and welfare of society. In this interactive, online course, we will discuss key information regarding water treatment technology of drinking water, including characteristics and capabilities of water treatment processes, source water quality, distribution system considerations, and residuals management. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information critical to the successful operation of drinking water related facilities. This course addresses critical factors that affect health, safety and welfare of the population being served by the water treatment system. | 1 | Fundamental |
| Driving Hazard Recognition | Safe drivers recognize potential hazards and stay out of harm's way. With our Driving Hazard Recognition course, you'll learn techniques for negotiating intersections and blind spots as well as avoiding erratic drivers, pedestrians, animals, and parked vehicles. You'll also learn about driving with limited visibility and in slippery conditions. Paying extra attention to common driving hazards can help ensure that your passengers and cargo return home safely. | 0.25 | Intermediate |
| Driving Large Vehicles and Heavy Equipment | Vehicles on public roadways come in many different shapes and sizes. Most passenger vehicles cars, vans, SUVs, and pickup trucks have similar configurations and controls, and drivers of these vehicles understand their capabilities and limitations. However, drivers of large trucks and heavy equipment must use extra caution in order to safely navigate and share the roads with smaller vehicles. This course covers some of the things that must be considered when driving large vehicles or operating heavy equipment in order to ensure the safety of operators and people who are nearby. Topics covered include blind spot awareness, how to safely back up, dealing with inclement weather and poor road conditions, construction and work zone considerations, and minimizing in-cab distractions. | 0.25 | Intermediate |
| Driving Preparation | Be prepared for any trip with our Driving Preparation training that provides the basics of vehicle maintenance and inspection as well as suggestions for planning your route. Our course also suggests some valuable emergency supplies that can help prevent a minor inconvenience from becoming a major problem, such as common tools, spare tire, jumper cables and more. In addition to saving time and other costs, proper driving preparation can ultimately save your life as well as the lives of other drivers, passengers, and pedestrians around you. | 0.25 | Intermediate |
| Ductile Iron Pipe | Ductile iron pipe is used for many applications, primarily for potable water lines and sanitary sewage pumping stations, but also for drainage systems. The qualities of ductile iron make it superior to other available products. Along with its predecessor, gray cast iron, it has a very long history of use, particularly compared to many other available products. This 2-hour interactive on-line course discusses the characteristics of ductile iron pipe, the advantages of this type of pipe and the design criteria for proper selection of pressure class. It also briefly discusses joint types available and their applications and the old system of classification for ductile iron (such as Class 52). The material is taken from the Ductile Iron Pipe Research Association. There will be a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Effective Delegation | LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them. | 3 | Intermediate |
| Effective Delegation: 01-What to Delegate | Learn and apply the delegation process to determine which tasks to delegate to team members (and to whom to assign each task). | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Effective Delegation: 02-Issues in Delegating | See and practice the issues that arise in delegation discussions and how to effective handle them. | 1 | Intermediate |
| Effective Delegation: 03-Your Path to Delegating | Learn and apply the five-step process for delegating tasks to members of your team. | 1 | Intermediate |
| Effective Delegation: 04-Mastering Delegating | Practice Delegating in a full scenario situation. | 1 | Intermediate |
| Effective Delegation: 05-Delegating Health Check | Test your ability to apply Delegating concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Effective Discipline: 01-Taking Disciplinary Action | See and rate examples of disciplinary action and understand the importance of designing messages for the team member. | 1 | Intermediate |
| Effective Discipline: 02-The Disciplinary Process and Documentation | Learn the standard procedure for disciplining team members and practice focusing on team member behaviors in documentation. | 1 | Intermediate |
| Effective Discipline: 03-Responding to Team Member Reactions | Since team members often react negatively to discipline, practice how you will respond in these situations. | 1 | Intermediate |
| Effective Discipline: 04-Your Path to Effective Discipline | Learn and apply the five-step process for effectively disciplining a team member. | 1 | Intermediate |
| Effective Discipline: 05-Mastering Effective Discipline | Practice Effective Discipline in a full scenario situation. | 1 | Intermediate |
| Effective Discipline: 06-Effective Discipline Health Check | Test your ability to apply Effective Discipline concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Effective Presentation Skills | In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation. | 1 | Intermediate |
| Efficient Pump Operation | This course is designed to teach participants how pumps in generating units can be operated efficiently. After completing this course, participants should be familiar with pump operating characteristics such as capacity, head, power, efficiency, and minimum net positive suction head. They should understand how these characteristics can be plotted and read on pump curves, and how pump curves can be used. In addition, they should be able to describe the effects of multiple pump operation and low flow on pump efficiency. | 1 | Intermediate |
| EHS Regulatory Overview | Violating Environmental, Health and Safety regulations can result in fines and even the closure of your business. This interactive online course will teach you the major regulations for general industry as it pertains to Environmental, Health and Safety. You will learn how to determine which regulations are relevant to your companies and/or industry. You will also learn what your organization can do to maintain regulatory compliance with EHS regulations. | 1 | Intermediate |
| Electric Pallet Jack Safety | Electric pallet jacks are useful tools designed for horizontal transport of palletized materials. More advantageous than manual pallet jacks, electric pallet jacks can move larger loads through tight spaces while allowing the operator to easily start and stop the vehicle. It is important to know how to safely operate electric pallet jacks. This course discusses pre-operation inspections, load preparation, PPE, and proper operating procedures. | 0.5 | Intermediate |
| Electric Shock | Electrical appliances and machinery are found in virtually every home and workplace. While they are common and convenient, they can also be quite dangerous. Thousands of people are shocked every year. An average of 60 people die each year from electric shock from small appliances, power tools, and lighting equipment. Knowing how to reduce the risk of electric shock, as well as how to respond should an injury occur, is essential for everyone. | 0.5 | Intermediate |
| Electrical 1: Cable Tray | Cable Tray is a course designed to familiarize participants with cable tray components and installation techniques. After completing this course, participants should be able to identify the types of sections and the types of fittings used in cable tray assemblies, explain how cable tray is supported, and explain how cable tray sections are spliced. They should also be able to size cable tray for specific numbers and types of conductors. | 2 | Intermediate |
| Electrical 1: Commercial and Industrial Wiring | This course is designed to familiarize participants with wiring devices and wiring techniques used at commercial and industrial sites. After completing this course, participants should be able to identify various types of switches, enclosures, control devices, and receptacles. They should also be able to describe basic techniques for planning and installing branch circuits, mounting boxes, and working with conductors. | 2 | Intermediate |
| Electrical 1: Electrical Diagrams | This course is designed to familiarize participants with various types of electrical diagrams. After completing this course, participants should be able to explain why symbols are used on electrical diagrams, and how to obtain information from a title block and an equipment location index. They should also be able to explain how to use each of the following types of diagrams: block, single line, schematic, wiring, connection, interconnection, and raceway. | 2 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical 1: Electrical Safety | The purpose of this course is to give participants a general understanding of basic principles of electricity and electrical safety. At the conclusion of this course, participants will have a basic understanding of various aspects of working safely around electrical equipment. | 2 | Intermediate |
| Electrical 2: Boxes and Fittings | Boxes and Fittings is a course designed to familiarize participants with various types of boxes and fittings used in electrical installations. After completing this course, participants should be able to identify different types of boxes and explain how to properly size outlet boxes, pull boxes, and junction boxes. They should also be able to identify different types of couplings, locknuts, and bushings, and explain what seal-off fittings are and how they are installed. In addition, they should be able to describe the three classes of hazardous locations that are identified in the National Electrical Code® (NEC®) and describe requirements for safely installing boxes and fittings in hazardous locations. | 2 | Intermediate |
| Electrical 2: Circuit Breakers and Fuses | Circuit Breakers and Fuses is a course designed to familiarize participants with the use of overcurrent protective devices in electrical installations. After completing this course, participants should be able to describe hazards associated with faults and overloads, describe the operation and common types of circuit breakers and fuses, and describe basic procedures for troubleshooting problems with circuit breakers and fuses. | 2 | Intermediate |
| Electrical 2: Electrical Lighting | Electric Lighting is a course designed to familiarize participants with various types of lamps and lighting fixtures and how install them. After completing this course, participants should be able to explain how the human eye sees and describe the characteristics of light. They should also be able to compare and contrast various types of lamps, and they should be able to explain how to install various types of light fixtures. | 2 | Intermediate |
| Electrical 2: Grounding | Grounding is a course designed to familiarize participants with both system grounding and equipment grounding. After completing this course, participants should be able to describe different types of grounding, describe National Electrical Code® (NEC®) requirements associated with system grounding, and describe how to size and install grounding electrode conductors. They should also be able to describe NEC requirements associated with equipment grounding, describe how to size equipment grounding conductors and bonding jumpers, and explain how to make sure that a grounding system is effective. | 2 | Intermediate |
| Electrical 2: Installation of Electrical Services | Installation of Electric Services is a course designed to familiarize participants with considerations associated with installing a commercial or industrial electric service. After completing this course, participants should be able to describe various types of electric services for commercial and industrial installations, and they should be able to identify and describe the main components of those services. They should also be able to explain how to select and install equipment for a single-phase service and a three-phase service. | 2 | Intermediate |
| Electrical 2: Motors: Theory and Application | This course is designed to familiarize participants with the operation and use of various types of electric motors. After completing this course, participants should be able to describe the basic construction and operation of direct current (DC) motors, alternating current (AC) induction motors, and AC synchronous motors. They should also be able to explain how motor speed can be controlled and how motors and motor circuits can be protected from damage, and they should be able to interpret the information on a motor nameplate. | 2 | Intermediate |
| Electrical Architecture | "An electrical circuit is a conductive path through which electrical current can flow. In this interactive online course on Electrical Architecture, you'll gain a knowledge of technical requirements on individual electric components, equipment, and entire electrical systems. Key principles covered in this course include switch circuit arrangements, dedicated vs. shared circuits, circuit voltages, heater contactors, and the basics of electrical wiring." | 0.5 | Fundamental |
| Electrical Equipment: AC and DC Motors | This course is designed to familiarize participants with basic concepts associated with the operation of electric motors. After completing this course, participants should be able to explain the basic principles of motor operation and describe the basic operation of a simple alternating current (AC) motor and a simple direct current (DC) motor. They should also be able to identify the parts of a typical AC motor and a typical DC motor, and describe the function of each part. | 2 | Intermediate |
| Electrical Equipment: Electrical Production and Distribution | This course is designed to familiarize participants with basic concepts associated with the production and distribution of electric power for use by process systems. After completing this course, participants should be able to explain, in general terms, how off-site power comes into a plant and how a plant can generate power on site for its own use. They should also be able to identify and explain the functions of the major components in an electrical distribution system. In addition, participants should be able to describe general hazards associated with these systems and explain how the possible effects of the hazards can be minimized. | 2 | Intermediate |
| Electrical Equipment: Motor Controllers and Operation | This course is designed to familiarize participants with basic concepts associated with what motor controllers do and how they do it. Typical steps for starting up, checking, and shutting down motors are also covered. After completing this course, participants should be able to explain how motor controllers control and protect motors. They should also be able to describe how to start up a motor, perform operating checks on a motor, and shut down a motor. | 2 | Intermediate |
| Electrical Fire Alarm Systems | This course presents key information regarding electric fire alarm systems. Fire alarm systems are of critical importance for several types of facilities, and are mandated for specific facilities by regulatory and government agencies. We will cover system fundamentals, and the various types of systems available and in use today - specifically, voice and alarm communications, automatic alarm signals, controls and signal initiation, transmission and notification. | 1 | Fundamental |
| Electrical Installations 1: Electrical Laws, Components and Circuits | "The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter"s Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time." | 1 | Fundamental |
| Electrical Maintenance: Battery Systems | This course is designed to introduce participants to industrial battery systems, battery cells, and how to inspect and test batteries. After completing this course, participants should know the characteristics and basic operation of a typical battery system and its components. They should also understand how to inspect and perform basic tests on industrial batteries. | 2 | Intermediate |
| Electrical Maintenance: Fasteners | This course is designed to familiarize participants with various types of fasteners used in electrical work. After completing this course, participants should be able to describe common types of threaded and non-threaded fasteners and identify applications for which each type might be used. They should also be able to describe basic procedures for installing fasteners. | 2 | Intermediate |
| Electrical Maintenance: Introduction to the NEC | This course is designed to familiarize participants with the organization and layout of the National Electrical Code® (NEC®). After completing this course, participants should be able to use the NEC to locate specific types of information. | 2 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical Maintenance: Relays, Part 1 | The purpose of this unit is to teach the basic principles of protective relays and to introduce directional and non-directional relays. The unit begins with the basic theory of protective relays, commonly used types of relays, and a brief explanation of how these relays are used. Additional details and examples of applications are provided for directional and non-directional relays. At the conclusion of this unit, the trainees should have a basic understanding of how protective relays work. They should be able to explain the need for protective relays and to list commonly used types of relays and their functions. They should also be able to explain how directional and non-directional relays work and give examples of situations in which they are used. | 1 | Intermediate |
| Electrical Maintenance: Relays, Part 2 | The purpose of this unit is to continue the development begun in Relays, Part 1 by introducing differential and pilot relays and discussing routine relay maintenance. The relays examined are differential relays and pilot relays used for differential comparison, phase comparison, and transfer tripping. The unit demonstrates how to inspect and maintain relays and how to put them in and out of service. At the conclusion of this unit, trainees should be able to explain how differential and pilot relays work and give examples of situations where they are used. They should also be able to describe how to approach routine inspection and maintenance and how to put a relay in or out of service. | 1 | Intermediate |
| Electrical Maintenance: Troubleshooting Electrical Circuits | This course is designed to familiarize participants with the use of basic troubleshooting procedures to troubleshoot problems in electrical circuits. After completing this course, participants should be able to identify and describe the main steps of a basic troubleshooting procedure and use the procedure to troubleshoot problems in electrical equipment and electrical systems. | 2 | Intermediate |
| Electrical Safety | Electricity is an essential element of the workplace. It provides light, heat, motive power and communications, but it is also dangerous. The need to constantly maintain, repair and upgrade electrical equipment means that employees will sometimes be in close vicinity to electricity and therefore exposed to some risk. This interactive online course covers the dangers of an arc flash and the effects of different current flows on the body. It describes the importance of a lockout tagout program and the goal of the NFPA 70E standard. | 0.5 | Fundamental |
| Electrical Safety General Awareness | Spark discussion with your team on effective ways to recognize, evaluate, and avoid electrical hazards. Topics covered include personal protective equipment related to electrical safety, OSHA requirements for working on equipment, and electrical injuries such as shocks, burns, electrocutions, and falls. | 0.25 | Intermediate |
| Electrical Systems | This course explains the basic components of an electrical distribution system, its function, and typical monitoring and protective equipment in the system. | 1 | Intermediate |
| Electrical Systems and Equipment, Part 1 | This course focuses on three of the major components in an electrical system: unit transformers, switchyards, and substations. This course also describes how these components fit into an electrical system, how they operate, and how they are checked to make sure they continue to operate properly. | 1 | Intermediate |
| Electrical Systems and Equipment, Part 2 | Electrical power systems deliver electricity to customers and to the plant. This course teaches how electrical power systems deliver electricity to customers and how electrical power systems adjust voltage and current for more economical power delivery. It also shows how electrical power systems deliver electricity to plant equipment and how the station service system can help ensure a continuous flow of power to the plant in the event of certain equipment malfunctions. Finally, it describes the essential service system, which helps operators maintain control during an emergency. | 1 | Intermediate |
| Electrical Theory & Mathematics | An understanding of basic electrical theory and mathematics is valuable for all electrical work. In this interactive online course, you'll learn critical principles of Electrical Theory, and the Mathematics involved in performing calculations to solve electrical circuit parameters, such as voltage, amperage, resistance and power. This course will introduce you to Ohm's Law, Watt's Law, Kirchoff's Law, and Faraday's Law. | 0.5 | Fundamental |
| Electrical Wiring: Cables and Conductors | This course is designed to familiarize participants with the basic construction and installation of electrical cables and conductors. After completing this course, participants should be able to describe the basic construction of cables and conductors, and describe how conductors are classified and rated. They should also be able to describe factors that affect the installation of a conductor for a specific application, and describe how to make splices and terminations. | 2 | Intermediate |
| Electrical Wiring: Conduit Installation | This course is designed to familiarize participants with the basic concepts of conduit and conduit fittings, and typical methods of cutting, bending, and installing conduit. After completing this course, participants should be able to describe the basic types of metallic and nonmetallic conduit, describe common types of conduit fittings, and describe procedures for cutting, bending, and installing metallic and nonmetallic conduit. | 2 | Intermediate |
| Electrical Wiring: Splices and Terminations | This course is designed to familiarize participants with common types of hardware and accessories used in making electrical splices and terminations, and how to prepare for and make various types of connections. After completing this course, participants should be able to identify basic types of terminals, connectors, tools, and materials used in making splices and terminations, and describe the applications for which they are suitable. They should also be able to describe how to make some common types of electrical splices and conductor terminations. | 2 | Intermediate |
| Electromagnetic Relays | When a fault occurs, current increases and voltage decreases. The increased current causes excessive heating, which depending on where the fault occurs, can result in a fire or an explosion. If the fault is not quickly isolated, it can cause damage that may result in loss of service. Various types of control systems are used to detect and isolate faults with minimum disturbance. A key component of all of these control systems is the protective relay. This course examines the functions and operation of some types of protective relays. | 1 | Intermediate |
| Email and Messaging Safety | Email is the primary means of attack from cyber-perpetrators. This course provides an overview of cybercrime via email, and how to employ safe email and messaging practices to avoid and help prevent cyber threats, attempts at fraud and identity theft. | 0.25 | Fundamental |
| Email Basics | Almost 145 billion emails are sent every single day. They are easy to send and virtually instantaneous. Emailing has become one of the most common ways for people to communicate with friends and family, as well as co-workers and customers. While email is simple and familiar, there are important rules to follow to ensure that messages are clear, polite, and effective. This course will outline those rules so that every email sent is a professional one. | 0.5 | Intermediate |
| Email Etiquette | Email has long since replaced postal "snail" mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication. | 2.5 | Intermediate |
| Emergency Power Testing | Did you know when standby/emergency generators fail to start during an actual emergency the very real possibility exists that lives could be lost, or businesses could lose? To achieve maximum system dependability, a scheduled series of inspections and tests must be performed. Due to the potentially life-affecting nature of being without power altogether, or the possibly of a system actually causing life-threatening conditions, several government agencies have established minimum requirements for inspecting and testing emergency standby generators. This interactive online course addresses ways to maximize reliability in standby power systems. | 0.5 | Fundamental |
| Emission Controls | One of the critical concerns of industries that deal with hazardous chemicals is the release or discharge of these substances into the air. This course identifies different types of emissions and their effects on the environment and describes methods that can be used to prevent or control emissions. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Employee Discipline | Hate those awkward moments when you have to 'deal' with inappropriate or ineffective behavior? Make those moments an experience of the past by learning how to appropriately discipline an employee. With proper implementation of the skills taught in this course, you will find that those awkward moments are few and far between resulting in a better experience for everyone, as well as your overall results. | 1 | Intermediate |
| Employee or Independent Contractor: The Risk of Misclassification of Employees | " A growing number of workers are trading in the corporate hierarchy for the freedom to be their own boss. These independent contractors can be found in nearly every profession, from lawyers and business consultants to writers and yoga instructors. They set their own schedule and they enjoy a wide variety of work experiences, but they also pay their own taxes and secure their own health insurance. A problem arises, however, when employers misclassify workers who are employees under the law as independent contractors. Depending on the specific terms of the working arrangement with an independent contractor, such as hours worked, reporting structure, payment schedule, et cetera, you may be in violation of some very serious worker classification laws. In this interactive, online course, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors." | 0.5 | Fundamental |
| Energy Accounting | "Buildings are constructed to provide enclosed environments within which people can comfortably live and productively work. Creating comfortable, productive environments requires energy, and energy costs money.<br>Buildings account for 76% of all the electricity consumed in the U.S. With that much energy being consumed, there are certainly going to be some opportunities for improvements in operational efficiency. This interactive online course will cover some of the concepts and terms needed to understand and manage energy consumption." | 0.5 | Fundamental |
| Energy Conversion Analysis (RV-10839) | Energy conversion devices are an important element of progress of society. Understanding their limitations and efficiencies is vital to our energy-informed and energy-conscious society. The ideal, simple, and basic power cycles of Carnot Cycle, Brayton Cycle, Otto Cycle, and Diesel Cycle, the ideal power cycle components and processes of compression, combustion, and expansion, and the ideal compressible flow components of subsonic nozzle, diffuser, and thrust are presented in this 4-hour online course. In the presented power cycles, power cycle components and processes, and compressible flow analysis, air is used as the working fluid. | 4 | Intermediate |
| Energy From Waste | How can you obtain energy from waste? This interactive, online course will cover potential sources of waste available for energy recovery - hot exhaust gases, cooling water, and heat lost from hot equipment surfaces and heated products. Systems utilized for Energy from Waste technologies will also be reviewed. This information is useful training for design professionals, facility managers, and system maintenance personnel. | 1 | Fundamental |
| Energy Management Basics | Buildings account for 76% of all the electricity consumed in the U.S. With that much energy being consumed; there are certainly some opportunities for improvements in operational efficiency. In managing the energy consumption of a building there are two goals, one is to provide and maintain the comfort of the occupants, and one is to minimize the amount of energy, and therefore money, consumed in the process. This interactive online course will cover some of the terminology and skills involved in basic building energy management. | 0.5 | Fundamental |
| Energy Management Exercise, and Safety | Have time set aside, but no energy to use the time well? Learn the skills of managing your energy to find yourself getting more done and feeling better while you do it! Through the effective use of application exercises and a rich multimedia process, this course will take you on a journey of discovery to implement a workable plan to energize your life and get more done. | 0.5 | Intermediate |
| Energy Modeling Outcomes - Design with Confidence | What is energy modeling and how can it help in your next site design? We all know that having the right information earlier produces substantially superior results. Systematic early design energy modeling assists design teams and owners by clarifying the decision space, and bringing relevant information to the discussion. This interactive online course will help you discover the replicable methods to produce better information sooner as well as the incentive programs to look for that will subsidize these best practices. Building energy modeling and distributed generation systems will be covered so you will have all of the tools necessary to push for net zero building designs. | 1 | Intermediate |
| Environmental Awareness | "Maintaining a healthy environment is essential for a healthy life. We all need clean air to breathe, clean water to drink, and safe food to eat. You need to be aware of and understand how your job impacts the environment, so you can do your part to help protect it.<br><br>This course discusses basic environmental regulations and how to be a good environmental steward. This course also talks about resource conservation, how to reduce and dispose of waste, and finally how to be prepared in the case of an environmental incident." | 0.25 | Intermediate |
| Environmental Driving Hazards | Although most driving occurs during the daytime hours with good visibility, there are instances where you may have to drive with limited visibility or in inclement weather. This course identifies common environmental hazards and strategies to prevent crashes related to environmental hazards. | 0.25 | Intermediate |
| Equipment Drive Components: Gear, Belt, and Chain Drives | This course is designed to familiarize participants with basic concepts associated with the operation of gear drives, belt drives, and chain drives. After completing this course, participants should be able to describe the general function of gear drives, belt drives, and chain drives, and explain how each of these equipment drive components operates to transfer power from a driver to a piece of driven equipment. They should also be able to describe operator checks that are commonly performed on gear drives, belt drives, and chain drives. | 2 | Intermediate |
| Equipment Hazard Basics | Equipment in the workplace causes many incidents every year. Hazards exist where there is a risk of human contact with a machine's moving parts. Movement can occur at startup, during operation, or while a machine is stopping. Many incidents occur due to malfunctioning or missing machine guarding, or to workers taking shortcuts. It is important to know the types of hazards that equipment typically creates in order to avoid incidents. This course will cover common types of hazards associated with equipment, as well as how to identify and avoid these hazards. | 0.25 | Intermediate |
| Equipment Lubrication: Using Lubricants | This course is designed to familiarize participants with some of the methods and devices used to lubricate equipment components such as bearings. After completing this course, participants should be able to describe the use of hand grease guns, pneumatic grease guns, grease cups, and centralized lubricators. They should also be able to describe the basic operation of drip-feed oilers, oil baths, bottle oilers, ring oilers, and circulating oil systems. In addition, participants should be able to describe the use of contact seals, labyrinth seals, and mechanical seals, and to describe how valve packing is lubricated. | 2 | Intermediate |
| Ergonomics Economics | What is ergonomics and how does it benefit you? This interactive online course looks at medical aspects which will help you understand why ergonomic study and a well-designed work environment are not only important, but essential. In addition to general solutions presented, you will review 13 common user-friendly ergonomic guidelines which have been developed from exhaustive studies. Finally, you will examine the economics of ergonomics to learn how well-designed ergonomic products and practices can help produce savings. | 0.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Ergonomics for Industrial Environments | Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in industrial environments, including engineering and administrative controls as well as motion-based, physical, environmental, and psychological risk factors associated with MSDs. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience. | 0.5 | Intermediate |
| Ergonomics for Office Environments | Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in office environments, examples of awkward postures and positions, proper lifting technique, workstation setup, work habits, and stretches. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience. | 0.5 | Intermediate |
| Escape Respirators and SCSRs | A respirator is a piece of personal protective equipment that guards the user against hazards in the air. There are many types of respirators and each type protects its user from a specific airborne hazard. Escape respirators allow a person who works in a normally safe environment enough time to escape if a respiratory hazard suddenly occurs. This course will discuss the different types of hazardous atmospheres that require escape respirators, how to select, inspect, and put on a self-contained self-rescuer, also called an SCSR, as well as how to use an SCSR. | 0.53 | Intermediate |
| ESD Precautions | This course covers the principles of electrostatic discharge and the necessary precautions that should be taken to avoid damage to sensitive equipment. | 1 | Intermediate |
| Essential Lighting: The Language, Metrics & Process of Lighting Design | This 3-hour interactive online course provides a basic understanding of lighting, its properties, and the terminology used to define various aspects of lighting. From the ability to accurately describe characteristics of color and intensity of a light source, to understanding how we respond to light, you will come away with insights on how lighting can literally change your world - in ways that can be good or bad.The author provides numerous examples that allow the reader to relate the technical issues to the everyday experience. Everyone knows lighting from their experience of it. Understanding its metrics, how it can be manipulated to help us perform better, use energy more effectively, and improve our moods can be valuable not only to designers, but to anyone interested in their environment.The course also delves into how lighting design decisions are made, and the positive potential effects of good lighting design practice. Some examples of common, everyday lighting problems and solutions are discussed at the end of the course to bring the value of thoughtful lighting design into perspective.Understanding terminology and concepts discussed in this course will be important before advancing to additional lighting design topics.There will be a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Essential Skills of Communicating: 01-Empowering Leadership Communication | Utilize an empowering and dynamic communication process to increase team members motivation and commitment. | 1 | Intermediate |
| Essential Skills of Communicating: 02-Craft Clear and Concise Messages | Construct and express clear and concise messages in both written and spoken communication. | 1 | Intermediate |
| Essential Skills of Communicating: 03-Deliver Messages Designed for the Team Member | Deliver messages that address the interests of the listener. | 1 | Intermediate |
| Essential Skills of Communicating: 04-Listen To Communicate | Use Reflecting, Probing, Supporting, Advising to demonstrate active listening to others. | 1 | Intermediate |
| Essential Skills of Communicating: 05-Manage Nonverbal Behavior | Make verbal and nonverbal communication congruent to reinforce the intent of messages. | 1 | Intermediate |
| Essential Skills of Communicating: 06-Impactful Feedback | Provide the rationale for your feedback, whether to reinforce or improve performance. | 1 | Intermediate |
| Essential Skills of Communicating: 07-Mastering Essential Skills of Communicating | Practice the skills learned in Essential Skills of Communicating in a full scenario situation. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Essential Skills of Leadership: 01-The Work of Leaders | Distinguish between leadership and management tasks and familiarize yourself with the Leadership Achievement Path. | 1 | Intermediate |
| Essential Skills of Leadership: 02-Focus on Behavior | Base discussions about performance and work habits on behavior rather than on personalities and attitudes. | 1 | Intermediate |
| Essential Skills of Leadership: 03-Maintain or Enhance Team Member Self-Esteem | Acknowledge contributions, results and accomplishments to enhance self-esteem. | 1 | Intermediate |
| Essential Skills of Leadership: 04-Encourage Team Member Participation | Involve team members in goal setting, problem-solving and decision-making. | 1 | Intermediate |
| Essential Skills of Leadership: 05-Lead Effective Meetings | Deploy meeting management skills to meet the goals of the meeting in the available time. | 1 | Intermediate |
| Essential Skills of Leadership: 06-Mastering Essential Skills of Leadership | Practice the skills learned in Essential Skills of Leadership in a full scenario situation. | 1 | Intermediate |
| Essential Skills of Leadership: 07-Essential Skills of Leadership Health Check | Test your ability to apply Essential Skills of Leadership concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Essentials of I-9 Compliance | "<br>To many employers, a Form I-9 may appear to be a simple one-page piece of hiring paperwork. However, the one page Form I-9 comes with enough rules and regulations to fill a 69-page how-to manual, the M-274 Handbook for Employers.<br>There are many common mistakes and human errors that can be made while completing and maintaining Form I-9 records. If an employer fails to complete or maintain I-9 documentation correctly, that employer may fall out of compliance and suffer harsh financial penalties. This interactive, online course contains valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce." | 0.5 | Fundamental |
| Essentials of Industrial Wastewater Treatment | High-quality fresh water is an increasingly rare and valuable commodity. The Earth contains a finite supply of water and the small fraction which is useable for drinking and other valuable uses will continue to come under increasing pressure. With a worldwide focus on water quality and management, the fate of wastewater generated by industry is more important than ever. Treating water for discharge or reuse, and minimizing the amount of water to be treated, are important concepts for the engineering, science or other professional to understand.This interactive online course will focus on considerations and technologies for treating industrial wastewater. Treatment of municipal and domestic wastewater, such as at publicly owned treatment works (POTWs), will be discussed briefly. | 1 | Fundamental |
| Essentials of Lean Manufacturing | What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to "think Lean" and apply Lean methods and tools to improve the quality and efficiency of your company. | 1 | Intermediate |
| Essentials of Six Sigma | Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, it's management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently. | 0.75 | Intermediate |
| Ethics for Professionals | What are ethical guidelines and how do they apply to you in your professional field? Every day you face decisions that have ethical implications. While the welfare and safety of the public are everyone's primary concerns, time, personal and resource pressures can often challenge these commitments. Taking a pro-active approach to workplace ethics is the best course of action to mitigate this risk, avoid legal problems, and build a working atmosphere of integrity, trust and purpose. In this interactive online course, we will explore how to develop a strong and sustainable set of workplace ethics and guidelines designed to mitigate ethics creep, avoid legal implications, and build a solid, ethical foundation for a healthy workplace culture. We will explore common ethical topics and challenges and will detail the best practices when faced with thought provoking situations. We will also present the differences between a Code of Conduct and a Code of Ethics and how they can affect each professional differently. | 1 | Fundamental |
| Ethylene Oxide Safety | This course will introduce and describe the characteristics and uses of ethylene oxide (EtO). It will also discuss the health hazards of ethylene oxide and how to protect yourself with the use of respirators and other personal protective equipment. OSHA regulations on ethylene oxide will be reviewed and will include information on exposure limits and monitoring; compliance; medical surveillance; and communication. Recommendations on engineering controls, work practices, and emergency response will be provided. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Everyone is a Leader | For a time, the Disney company got some of its best ideas from the janitor. Leadership can be seen in any role and from any person. Using application exercises and rich multimedia, learn how to identify leadership potential and how to use the influence of unofficial leaders to everyones benefit. | 0.5 | Intermediate |
| Excel Basics for Mac | "Get Started with Microsoft Excel - The Most Useful Software Ever Created<br>Excel can do almost anything  crunch numbers, create lists, store data, edit budgets, and more. In this basics course well show you how to get started with Excel on a Mac, including using the most popular features.<br>Whether you're a first-time Excel user, or if you just want to re-learn the fundamentals, this course is for you!" | 2.25 | Fundamental |
| Excel for Project Management | "Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information. A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan." | 1 | Fundamental |
| Excel: Creating Dashboards | "Get More From Excel - Learn To Use Forms, Lookup Functions, Charts, PivotTables, and Slicers To Turn Data Into Answers.<br>Crunching numbers is what Microsoft Excel does best - but how do you use those numbers to get the answers you need? This course will show you how to use advanced Excel features to turn massive amounts of data into visual, customizable dashboards. The ability to easily query and display information from your Excel data is a helpful tool for decision making, and this course will demonstrate five advanced Excel features (Forms, Lookup Functions, Charts, PivotTables, and Slicers) which will do just that." | 3 | Fundamental |
| Excel: Data Analysis With Pivot Tables | Get More From Your Excel With The Power Of PivotTables.  Pivot Tables are the perfect tool to analyze large amounts of data in Excel. Being able to summarize, visualize, and tabulate your data makes PivotTables an important skill for anyone who uses Excel to store and report on data, and in this course Microsoft trainer Kathy Jones will show you how to effectively use the PivotTable tools in Excel 2013 and 2016. | 2.5 | Advanced |
| Excel: Introduction to PowerPivot | "Learn How To Transform Excel Into Your Big Data Power Tool<br>Power Pivot is an Excel add-in you can use to perform powerful data analysis and create sophisticated data models. With Power Pivot, you can mash up large volumes of data from various sources, perform information analysis rapidly, and share insights easily.<br>In this course well show you everything you need to know in order to install and start using Power Pivot in Excel." | 1.25 | Fundamental |
| Excel: Power Functions | "Learn to Use the 10 Excel Functions Recommended by the Experts<br>Excel provides over 400 functions to perform a variety of calculations within your data. With this many functions, its guaranteed you're missing out on some powerhouse formulas that can make your day easier. This course explores 10 functions the experts recommend to expedite your data analysis." | 1 | Fundamental |
| Existing Building Commissioning: Implementing Retrocommissioning on Your Project | What is retrocommissioning and how will it benefit your building? Learn about the retrocommissioning process and how to implement this process on an existing building, with lessons learned from a commissioning professional and Professional Engineers. This interactive online course will give a quick overview of commissioning and the benefits of commissioning for existing buildings, followed by how to implement retrocommissioning by walking the participant through each step of the process. Benefits of and difficulties with implementing the commissioning process on existing projects are evaluated. Finally, a sample case study is given which discusses lessons learned on the retrocommissioning implementation process. | 1 | Intermediate |
| Exit Routes, Emergency Action Plans & Fire Prevention Plans | A safe means of escape is crucial when it's necessary to quickly evacuate a building. This course will provide examples of some previous egress tragedies that well help you to understand critical means of egress requirements.  You will learn how to develop an emergency action plan and a fire prevention plan that may be implemented in your facility so you can be ready if disaster strikes. | 1 | Fundamental |
| Explosive and Flammable Chemicals | A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented. | 1 | Intermediate |
| Eye and Face Protection | Workers are subject to blindness, contusions and sometimes fatal injuries, due to eye and face hazards. 90% of all workplace eye injuries can be avoided by using the proper safety eyewear. This interactive online course will teach you how to select the proper personal protective equipment for eye safety. Additionally you will learn OSHA regulations for eye and face protection. You will also learn how to properly maintain your eye and face protective equipment. | 1 | Intermediate |
| Facilitating Meetings and Groups | LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals. | 7 | Intermediate |
| Facility Asset Management | Facility asset management is the process of taking care of things of value in and around a facility; equipment, buildings, systems, walls, roofs, sidewalks, parking lots, and so on.  In this course you will learn about the components necessary to implement an effective asset management program. You will also learn about the relationship of asset cost to maintain and future capital expenditures, purchasing the appropriate quality assets and parts, documenting asset history and performance, critical asset analysis, failure mode and effect analysis (FMEA), auditing of the maintenance process, life cycle analysis, forecasting and budgets, and performance measures. | 1 | Fundamental |
| Facility Maintenance Management | Facility maintenance management is the logistical component of taking care of a facility, and involves managing the day to day maintenance requirements of a facility.  In this course, you will learn about work request management, work planning and work scheduling, computerized maintenance management systems (CMMS), and communication methods and techniques associated with the maintenance function.  You will also learn about how to address staffing concerns, how to address travel and transportation of your maintenance technicians, and backlog management.  Also discussed are how to properly lead a facility maintenance team, and how to develop a long term facility maintenance management plan. | 1 | Fundamental |
| Facility Management Essentials | In this course, you will learn about the key principles you need to understand to be able to be a successful facility manager.  You will learn about leadership and management skills needed in facility management, in addition to topics around business finance, staffing, work flow/asset tracking, work planning/scheduling and maintenance, management and craft training, performance measures, and customer/client communication and coordination. | 1 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fall Prevention and Protection - General Industry | Working at elevated heights presents a serious danger of falling. Falls can be caused by inattentiveness, slippery surfaces, working in awkward or out-of-balance positions, or insufficient training. This course highlights numerous methods of prevention and protection, including fall arrest systems, the equipment associated with fall prevention and protection systems, vertical and horizontal lifelines, as well as inspection and maintenance guidelines. This course also discusses associated topics such as the proper procedure for putting on a body harness, lifeline swing hazards, calculating fall space clearance, and harness suspension syndrome. | 1.05 | Intermediate |
| False Alarm Prevention | Across the country, state laws are evolving on a constant basis to address the problem of false alarm signals. The daily operation of alarm companies across the United States is critical and essential to the success of reducing the number of false alarm dispatches. The problem of false dispatches will not be reduced on any significant level without a careful and constant review of these ordinances, as well as the conscientious application of aggressive procedures in designing, installing and servicing alarm systems, and training alarm system end users. This 2-hour online course provides solutions for the prevention of false alarms based on statistical information, as well as the application of technical and operational procedures. This course provides a foundation for alarm contractors to help reduce false alarms by educating their customers about proper alarm operation, the role of law enforcement, and the technical responsibility of the alarm contractor.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Fundamental |
| Fans | Many processes and systems in an industrial facility require the movement of air or other gases. Air movement is important in applications such as heating and cooling, pollution control, combustion, and ventilation. One of the most common ways to move air and other gases in a controlled manner is with fans. This course identifies the major components of fans and describes the operation of various types of fans. The operator's role in keeping fans working properly is also examined. | 1 | Intermediate |
| Fatigue Management | Fatigue in the workplace is a dangerous condition in which an individual may not make good decisions or react quickly enough. This course will describe situations or conditions that lead to fatigue, and how employers and employees can take steps to minimize the possible negative effects of fatigue. | 0.25 | Intermediate |
| Financial Management 1: Negotiating Contracts | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end.This is the first chapter of the "Financial Management for the A/E/C Firm" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Financial Management 2 & 3: Pricing for Profits, Generating Cash and Getting Paid | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly.<br>This is the second and third chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 2 | Intermediate |
| Financial Management 4: Accounting & Cash | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow.<br>This is the fourth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Financial Management 5: Strategic Planning & Budgeting | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Financial Management 6 & 7: Financial Controls, Monitoring & Project Budgeting | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Financial Management 8: Controlling Labor Costs | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project.<br>This is the eighth chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Financial Management 9: Purchasing | "Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm.<br>This is the ninth and final chapter of the ""Financial Management for the A/E/C Firm"" course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Fire Alarm Essentials | In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations. | 2 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fire and Smoke Dampers Simplified | Fire and smoke dampers are essential components of fire and life safety systems of a building. Their operation prevents the spread of fire and smoke and allows building occupants to safely exit a building during a fire. Fire and smoke dampers are also vital to the integrity of fire and smoke rated building assemblies. Improper specifications, installation, actuation or simply the lack of fire and smoke dampers can result in damage to a building or worse, loss of human life. This interactive online course will discuss fire walls, fire barriers, smoke barriers, fire partitions and horizontal assemblies. | 1 | Intermediate |
| Fire Essentials and Fire Science | "According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for $329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard. This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire." | 1 | Fundamental |
| Fire Extinguisher Safety | We see them hanging on the wall every day but most people know very little about fire extinguishers. Use this course to educate your team on the fire tetrahedron, the types of fires that can occur in the workplace, and how and when to use a fire extinguisher. This course also describes when to evacuate and provides some proper maintenance tips for fire extinguishers. | 0.73 | Intermediate |
| Fire Safety | Every second counts in the event of a fire. In only 30 seconds, small flames can get out of control and turn into a major fire, which can lead to an injury or a fatality. In this course, you will learn about the nature of fire, preventative and protective measures, fire sprinklers, smoke detectors, alarms, fire extinguisher use, evacuation, the stop, drop, and roll procedure, and more. | 0.5 | Intermediate |
| Fire Systems and Sprinkler Basics | A fire system has several devices working together to detect and warn people through visual and audio appliances when smoke, fire, or other emergencies are present. A fire sprinkler system is known as an active fire protection system that consists of a water supply system that provides adequate pressure and flow rate to a water distribution piping system, and then to the fire sprinklers connected to the system. In this interactive online course, we will discuss the components of fire systems and fire sprinkler systems. | 0.5 | Fundamental |
| Fire Systems: Fire Alarm Control Panel | "Fire alarm system equipment and installations are regulated and controlled by various national, state, and local codes. When referring to fire alarm systems, you will most likely work with different types throughout your career. Understanding the basic signals on a fire control panel will help you to feel comfortable with operating the system. This interactive online course will briefly discuss fire codes, types of fire alarm systems, and how to handle various fire alarm conditions. You'll learn the ins and outs of initiating systems and how to test, check, and troubleshoot your fire alarm system." | 0.5 | Fundamental |
| Fire Systems: Fire Extinguishers | According to the National Fire Protection Association (NFPA), in 2014 there were 494,000 structure fires, causing nearly $10 billion in property damage. In the event of a fire, every second counts. Being prepared to use safety equipment properly, removing yourself from danger, and calling for help can literally save your life and the lives of those around you. This interactive online course will teach you the basics of how fire extinguishers work. You will also learn the different types of fire extinguishers and their ratings systems. | 0.5 | Fundamental |
| Fire Systems: Life Safety Testing | "Today's modern expansive high-rise buildings have one important thing in common - their populations can rise into the hundreds or thousands of people. The building standards address every aspect of fire protection to assure the highest level of life safety achievable, but can only be achieved with the help of the Facility Professional. This interactive online course will look at various aspects of Life Safety as it relates to building operations, population control, fixed fire protection systems and fire department intervention facilities. Understanding the systems under your responsibility as the Facility Professional is key to the proper maintenance of these systems. This course will review the interaction between systems and stress the importance of monitoring and testing regularly." | 0.5 | Fundamental |
| Fire Systems: Wet & Dry Sprinkler Systems | Did you know wet pipe sprinkler systems provide the assurance that a fire will be controlled or extinguished 96% of the time? The modern-day business facility is a complex of systems designed to provide services to the occupants. Due to the multi-story expansive building designs today, there is an increased potential for loss of life and property, requiring an increased level of fire protection. This interactive online course covers the different types of sprinkler systems you may encounter and will help you understand their limitations to maintain the level of performance designed into each component. | 0.5 | Fundamental |
| Fire Water Systems – Storage, Pumping & Distribution | Having a readily available water supply for firefighting procedures is essential for protecting the health, safety, and welfare of the general public. This means water must be available and accessible in any weather condition. This interactive online course will teach you about water storage systems and design considerations for water sources. You will also learn about water pumping and distribution systems. | 2 | Fundamental |
| Fire! Designing Means of Escape | Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features-adequate means of egress-in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code.There is a test at the end of this course.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Advanced |
| First Aid - Alcohol and Drug Overdose | Alcohol and drug overdoses are serious situations at work. They can lead to poor job performance, workplace violence, severe injuries, and even death. In this course, you'll learn some common types of drugs that can be overdosed on, symptoms of alcohol and drug overdoses, best practices for interacting with someone who's overdosed on alcohol or drugs, and first aid to help the person who's overdosed. | 0.25 | Intermediate |
| First Aid - Animal and Human Bites and Scratches | People can receive bites or scratches from small animals, larger animals including livestock and large predatory animals, and even other humans. All of these may be situations that require at least simple, basic first aid, and in some cases they may require additional emergency medical care. In this course, you'll learn the basics of what to do if someone is bitten or scratched by a small animal, livestock, a larger predatory animal, or another person. | 0.5 | Intermediate |
| First Aid - Automated External Defibrillator (AED) | In some first aid situations, the victims heart will be beating too quickly or in an irregular manner. In cases like these, an automated external defibrillator, also known as an AED, can be used to shock the persons heart back into a normal rhythm. In this course, you'll learn when and how to use an AED, including an automatic AED and a semi-automatic AED. | 0.53 | Intermediate |
| First Aid - Bleeding Emergencies | There are certain cases when a person is bleeding that are always emergencies. These include extreme blood loss, amputations, abdominal evisceration wounds, sucking chest wounds, and internal bleeding. This course explains the importance of calling for emergency medical assistance in these situations and lists the appropriate steps of first aid to provide. | 0.5 | Intermediate |
| First Aid - Breathing Emergencies | People can have difficulty breathing for many reasons; these can be universally referred to as breathing emergencies. Breathing emergencies can be caused by choking, a punctured lung, an allergic reaction, exposure to chemicals or other toxins, asthma, and other causes. In this course you'll learn more about the causes of breathing emergencies, symptoms of breathing emergencies, how to provide first aid, and you'll get guidance on calling for emergency medical assistance. | 0.25 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| First Aid - Broken Bones and Dislocations | Broken and dislocated bones are a common injury in all walks of life, including at the workplace. By following safe work practices, properly guarding hazards, and wearing appropriate PPE, these injuries can be avoided. However, in some cases, broken bones will still occur. In this course you'll learn some different types of broken bones and dislocations and how to provide first aid for them. You'll also get some guidelines for when its necessary to summon emergency medical assistance to transport the person for additional medical care after first aid is provided. | 0.25 | Intermediate |
| First Aid - Burns | Burns are a common occurrence in life, including at work. These may be something as simple as a sunburn or as frightening as a radiation burn. Burns are generally discussed in terms of their severity first degree, second degree, and third degree. In this course, you'll learn how to prevent burns from occurring at work, how to recognize the degree of a burn, how to provide first aid for different degrees of burns, and how to provide first aid for special types of burns, including electrical burns, burns from chemical spills, and thermal (heat) burns. | 0.5 | Intermediate |
| First Aid - Cardiopulmonary Resuscitation (CPR) | If a persons not breathing and their heart is not beating, they can die or suffer permanent brain damage very quickly. In situations like this, its important to know how to perform cardiopulmonary resuscitation, or CPR. This course explains when and how to perform cardiopulmonary resuscitation. The proper process for providing Hands-Only CPR is also explained. | 0.25 | Intermediate |
| First Aid - Dehydration | Dehydration can be a serious health concern and if severe enough, can even be fatal. This course explains ways to stay properly hydrated, explains how people get dehydrated and symptoms of dehydration, and explains first aid techniques for mild and severe dehydration. | 0.25 | Intermediate |
| First Aid - Diabetic Emergencies | Diabetes is a disease that is becoming increasingly more common in the United States and in other parts of the world. As a result, the chances that you or a coworker may suffer from a diabetes-related health emergency have increased as well. In this course, you'll get a basic idea of what diabetes is, learn how to recognize symptoms of a diabetes-related health crisis, and will learn some tips for providing first aid to a person suffering from a diabetic emergency, including both high blood sugar (hyperglycemia) and low blood sugar (hypoglycemia). | 0.5 | Intermediate |
| First Aid - Eye Injuries | A persons eye can be injured easily while on the job. As a result, safety glasses or similar eye and face protection is important when appropriate. In addition, however, workers should know how to provide first aid for eye injuries suffered at work. This course covers first aid for eye injuries from chemicals, cuts and scratches, and for objects embedded in the eye, and provides general procedures for using safety showers and safety eyewashes. | 0.25 | Intermediate |
| First Aid - Fire Ant Bites and Stings | Fire ants are aggressive ants that sometimes bite and sting. This course explains where in the U.S. fire ants are most commonly found and, within those regions, the types of areas you're most likely to find them. It gives tips for bite/sting prevention, and discusses first aid procedures for bites and stings, including first aid for people who are allergic to the bites and stings. | 0.25 | Intermediate |
| First Aid - Flying Insect Stings | Flying insects, such as bees, wasps, hornets, yellow jackets, and even so-called killer bees are common throughout the United States. In most cases, they aren't aggressive and they don't seek to sting humans. However, when stings do occur, they're typically minor and require only limited first aid. In other cases, however, especially if the person who's stung is allergic to the sting, or if the person is stung many times, the situation can be quite severe or even potentially fatal. In this course, you'll learn how to avoid being stung by flying insects, what to do if someone has been stung and is having a mild reaction, and what to do in the event of a severe reaction to a flying insect sting, including what to do if the stung person is allergic. | 0.25 | Intermediate |
| First Aid - Head Injuries and Concussions | Head injuries are common at work. In some cases, they can be quite minor, but in others, they can be very serious or even deadly. In this course, you'll learn some tips for avoiding head injuries, how to recognize a concussion, how to provide first aid for minor and more serious head injuries, and how to provide first aid if the person has lost consciousness. | 0.27 | Intermediate |
| First Aid - Head, Neck, Back, and Spine Injuries | Injuries to the head, neck, back, or spine can be especially dangerous because they can involve damage to the brain or spine, leading to death or permanent paralysis. This course describes the potential severity of these injuries, lists some tips for recognizing potentially serious injuries to the head, neck, back, or spine, and provides first aid tips for these situations. | 0.25 | Intermediate |
| First Aid - Heart Attacks and Cardiac Arrest | Heart attacks and cardiac arrest are both health emergencies involving the heart. They are relatively common in America and they can lead to death if the person doesn't get rapid first aid followed up by prompt medical care. This course explains what heart attacks and cardiac arrest are, how to recognize their symptoms, how to provide first aid, and the importance of summoning additional medical care for people suffering heart attacks and cardiac arrest. | 0.25 | Intermediate |
| First Aid - Initial Steps | Its not always clear what to do in a situation that requires first aid. Especially if its an emergency situation. This course spells it out, providing guidelines for what to do in an emergency first aid situation, and the order in which to do them. The course introduces a method called DR. ABC that stands for looking for danger before responding; checking to see if the victim is responsive; checking to see if the victims airway is clear; checking to see if the victim is breathing; and checking to see if the victims circulatory system is working. The course also explains the purpose (and limits) of emergency first aid, and the importance of summoning emergency medical assistance. Finally, it provides some general legal information about providing first aid. | 0.53 | Intermediate |
| First Aid - Poisoning | The word poison is a general term used to describe a substance that can cause illness or death. Poisons can include many things, including medicines, drugs, household products, workplace chemicals, plant and animal toxins, and gases. Poisons can be ingested, inhaled, injected, or absorbed into the body. This course explains what poisons are, lists some common poisons, gives tips for preventing exposure to poisons, explains the importance of contacting a Poison Control Center in the event of a poisoning, and explains first aid procedures for poison exposures. | 0.25 | Intermediate |
| First Aid - Scorpion Stings | Scorpions can be found throughout most of the United States. However, the only scorpion commonly thought to be dangerous to a healthy adult is the bark scorpion, which is typically found in the Southwest. In most cases, a scorpion sting calls for only some minor first aid and perhaps some rest. But bites from a bark scorpion, or bites to children, elderly, or ill people, may require additional first aid. This course explains first aid for a scorpion bite. It also explains where scorpions live and what they look like; gives tips for preventing scorpion bites; and explains the symptoms of scorpion bites. | 0.25 | Intermediate |
| First Aid - Seizures | A seizure is caused when there is sudden, abnormal electrical activity in the brain. Causes of seizures include diseases, such as epilepsy, brain injuries, fever, and reactions to drugs. Although most seizures are brief and cause no lasting harm, some seizures may be prolonged, presenting both immediate danger and long-term effects. In this course, you'll learn about the symptoms and causes of seizures as well as first aid to provide a person experiencing a seizure. | 0.25 | Intermediate |
| First Aid - Shock | When a person goes into shock, it can be a very serious and even fatal health situation. As a result, this course will explain some reasons people go into shock, list some symptoms of shock, explain first aid to provide to someone in shock, and note the importance of calling for qualified medical assistance to aid someone in shock. | 0.25 | Intermediate |
| First Aid - Snake Bites | Bites from snakes of any type can be hazardous and require first aid. This is especially true with bites from poisonous snakes. This course focuses on first aid for bites from the four most common poisonous snakes in the United States: rattlesnakes, water moccasins, coral snakes, and copperheads. Information focuses on snake identification, bite prevention, and proper first aid. | 0.25 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| First Aid - Spider Bites | Spider bites are typically minor issues, but they can be more serious. And that's especially true in the U.S. if the spider is a black widow, a brown recluse, or a hobo spider. In this course, you'll learn basic first aid for minor spider bites. In addition, you'll learn what black widows, brown recluses, and hobo spiders look like; where in the U.S. they tend to live; the kind of areas they're commonly found in; why they tend to bite and how to avoid their bites; proper PPE to wear when in an area they may live in; symptoms of their bites; first aid for their bites; and the importance of calling for qualified medical care if one of these three spiders has bitten someone. | 0.25 | Intermediate |
| First Aid - Sprains and Strains | Sprains and strains aren't the most serious injury a person can experience at work, but they are among the most common. This course explains what sprains and strains are, explains the RICE method for training sprains and strains, and gives tips on when a person with a strain or sprain should seek additional medical care. | 0.25 | Intermediate |
| First Aid - Stroke | A stroke is a serious medical issue requiring emergency medical assistance. This course explains some causes and types of strokes, lists common stroke symptoms, introduces the American Stroke Associations F.A.S.T. method for identifying stroke symptoms and calling for first aid, and provides first aid procedures. | 0.25 | Intermediate |
| First Aid - Tick Bites | Ticks are small insects commonly found in grassy areas pretty much everywhere in the United States. They bite people and suck their blood; while doing so, they can transmit many dangerous diseases to the person they're biting, with Lyme disease being the most notable. In this course, you'll learn what a tick looks like and where ticks live; how to avoid being bitten by a tick; how to inspect your body for ticks; how to remove a tick from your body if you have been bitten; first aid for tick bites; symptoms of tick bites and serious reactions to tick bites; and tips for seeking medical care after a tick bite. | 0.25 | Intermediate |
| First Aid - Unconsciousness | People can lose consciousness for many reasons. This course explains some of the most common reasons, explains the importance of calling for qualified medical assistance, and gives tips for providing first aid. | 0.25 | Intermediate |
| First Responder Operations Level Refresher | This course is designed to be a refresher for the Operations Level Responder to Hazardous Materials Incidents, meeting the requirements of NFPA 472 and 29 CFR 1910.120(q). The course is divided into four modules. Each module should take approximately two hours to complete. The first module covers how to survey a hazmat spill or incident; how to collect hazard and response information with MSDSs, labels, and markings; and how to identify the various transport containers and storage tanks used for hazardous materials. The second module covers the chemical and physical properties of materials and their impact on storage and transport containers; response objectives, including how to assess the risk to a responder for each hazard class; and how to determine the suitability of SCBA and personal protective equipment. The third module covers the principles of site management, how to establish and enforce control zones, and tactics for emergency decontamination. It will discuss common types of releases and how to deal with them, and how to conduct defensive operations such as damming and diking and air monitoring. The fourth module covers incident management systems and the first responder's role in a response plan. It will also cover the potential for terrorist attacks, typical agents used in a terrorist event, and the appropriate response tactics. | 8 | Intermediate |
| Flammable and Combustible Liquids | This course provides important information on flammable and combustible liquids found in a variety of industrial workplaces. Based on OSHA standards, this course helps raise awareness of the potential hazards presented by common workplace products while offering practical instruction on labeling, storage, handling, and managing spills and waste to help establish safe work habits for yourself and your team. | 0.5 | Intermediate |
| Flu Awareness | According to the Centers for Disease Control and Prevention, or CDC, 25-50 million Americans get the flu each year. Of those, about 500,000 are hospitalized due to complications. There are tens of thousands of flu-associated deaths each year as well. It is essential for everyone to know how to recognize the symptoms of the flu, as well as how to treat it, when to go to the doctor, and how to prevent from getting it again. | 0.33 | Intermediate |
| Forklift Safety | Contains basic forklift operating procedures intended to increase safety and help prevent the most common forklift accidents. Provides information on the most common types of forklifts used in general industry and warehouse environments. Includes important information required by OSHAs general industry standards (29 CFR 1910.178) as well as best practices on operating powered industrial trucks. | 0.73 | Intermediate |
| Forklifts - Reducing Product Damage | This course covers the common ways forklift operators cause product damage in a warehouse environment, and recommended practices for avoiding this damage. It is meant to be used as an introductory or refresher course for forklift operators. | 0.25 | Intermediate |
| Formaldehyde Awareness | Breathe easy with a better understanding of working safely around Formaldehyde. This course provides information on the history and production of formaldehyde as well as its uses, sources, exposure regulations, the types of formaldehyde, and the effects of exposure to formaldehyde gas. | 0.25 | Intermediate |
| Fuel and Combustion Systems Safety - Business Contingency Planning | "Welcome to Fuel and Combustion Systems Safety - Business Contingency Planning. Everything presented in this course is focused on helping you to reduce the probability and severity of a fuel or combustion system accident. However, nothing can bring all of this to zero risk. For example, there will always be things beyond your control, such as weather events. This course will help you to respond in an effective and timely manner and to know something about what to expect should there be an incident at your facility. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Combustion Basics | "Welcome to Fuel and Combustion Systems Safety - Combustion Basics. In this course we lay a foundation for more complete technical understanding of fuel systems and combustion equipment. If you've been associated with this world, there may be little here that is new. If not, this is a course you may refer to over and over again in your career. The information in this course is out there in many forms and places. We will define combustion, review fuels, and explore the fire triangle. You'll get combustion chemistry and how to apply it to burner systems. We'll delve into environmental emission issues, basic burner design issues, and draft systems. We'll cover flames and instruct you in where to look and what to look for as well as fuel/air ratios evaluations. Throughout the course you will be given real-life stories so that you can see the practical applications for what you are learning. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment | "Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment It's intuitive that controlling equipment risks involves regular safety testing and maintenance of equipment. However, much of the safety and risk management of fuel-fired equipment needs to occur in the design and specification of equipment, along with its installation and commissioning. In this course we address these issues as well as ongoing safety device testing requirements. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: People | "Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: People. This course focuses on one of the three key concepts found to form the basis of long-term sustainable fuel and combustion system safety: people, policies, and equipment. These are the three legs of a three-legged safety and risk management approach. Any successful program must contain elements of each to be successful. The "people" piece involving controlling human error is among the most important. Human error has been the leading cause of many fuel and combustion system accidents. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies | "Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies. There comes a time in the life of a fuels and combustion equipment safety and risk management program when thought must be provided to make things sustainable. The immediate fixes must become institutionalized. Knowledge-based practices need to become rule based. In this course 10 important concepts are summarized, reinforced, and framed in an approach for developing sustainable policies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning | Welcome to Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning. In this course we provide advanced concepts for facilitating the safe repair and cleaning of gas piping systems. Some of the most significant and horrific tragedies have come about from mistakes made in preparing gas piping for maintenance, bringing gas piping back into service, and trying to clean gas lines. The concepts presented in this course need to be made the subject of policies and practices with both designers and maintenance staffs. A section at the end of this course highlights a relatively new standard, NFPA 56, Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, which is central to this topic. It took many months of meetings with contributions from over a dozen experts to write NFPA 56. This is a very important and ground breaking piece of work that applies directly too many of the concepts presented in this course. Anyone who does or oversees activities related to gas line repairs and cleaning must become familiar with this standard. This course is not a design guide or a "how to" for gas line purging and cleaning. Each site and its circumstances and conditions are different, and nothing here should be seen as a replacement for sound engineering judgment and the requirements prescribed by applicable codes. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Gas Supply System Issues | "Welcome to Fuel and Combustion Systems Safety - Gas Supply System Issues. Once natural gas piping is inside a facility, it is pretty easy to look up, see it marked, and understand what it is. Many people don't quite understand how the gas might have gotten there. It's important to know where the gas came from, who owned it and at what point, how the pressure got controlled, and how to shut it all off if necessary. In this course we also discuss alternative fuel considerations, such as propane, landfill, or digester gas service issues. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Global Perspective on Fuel and Combustion System Risks | "Welcome to Fuel and Combustion Systems Safety: Global Perspective on Fuel and Combustion System Risks. It's a big world out there and combustion equipment is everywhere. You can learn a lot by seeing what the state of the art is and is not in both developed and developing countries. This course provides insights from such experiences. You will see the good, the bad, and the ugly so that you can take advantage of them all without the pain that others have experienced to gain this knowledge. This course is especially important if you operate equipment in developing countries. This can be an entirely different experience and one that requires considerable thought about fuel choices, installation issues, and training of staff. To be successful your focus has to be on simplicity. Real-life stories in this course communicate this clearly. Don't be fooled by the title of the course. There's information here that applies for equipment operated anywhere. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Natural Gas Piping Basics | "Welcome to Fuel and Combustion Systems Safety - Natural Gas Piping Basics. Combustion systems start with fuel systems and fuel systems start with piping. By far the most common fuel burned throughout the world is natural gas. Natural gas use is growing even more in popularity as the United States develops shale gas deposits. For this reason the primary focus of this course is piping related to natural gas systems. Before we discuss advanced gas piping concepts it's important to review the basics. In this course we attempt to discuss the most basic natural gas related piping concepts starting with the piping itself, how it's made, and how it's installed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks | Welcome to Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks. The potential for catastrophes is much greater for boilers than for any other category of combustion equipment, because there is a twofold risk, fuels and saturated water/steam. Heating water in boilers or hot water heaters, is by far the single biggest application of heat energy and fuel trains on the planet. In the United States alone, a 2005 study indicated that there are over 163,000 commercial and industrial boilers. There are millions of residential boilers and hot water heaters as well. In this course we describe different boiler types and also provide insights into some of the hazards associated with steam systems, including safety relief valves and steam piping. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! | "Welcome to Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! In this course we will cover the safety aspects of fuel and combustion systems. We will explore the gaps in the knowledge of people responsible for system safety. You will get instruction in developing safe environments, codes and standards, and the organizations that publish the codes. We will also review risk assessment and the insurance industry. You'll also receive information on the possibility of personal criminal liability. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved." | 1 | Intermediate |
| Fundamentals of Business Crisis Management | In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan. | 2.5 | Intermediate |
| Furnace Fundamentals | An important part of an operator's job when working with any furnace is to make sure that the furnace is running efficiently in order to save fuel, maximize the amount o f heat that is produced, and minimize the amount of heat that is wasted. More importantly, careful furnace operation helps prevent explosions, injury, and damage to equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Furnace Introduction | Furnaces are an important source of heat for many industrial facilities. Furnaces, which can also be referred to as fired process heaters, are basically enclosed structures that produce heat by the combustion of fuels. This course will review the major components that make up furnaces, explain how combustion takes place inside a furnace, and identify the different flow paths inside a furnace.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fuses | This course introduces participants to the basic components of various types of fuses, explains how fuses are rated and sized, and describes basic procedures for troubleshooting a cartridge fuse. | 1 | Intermediate |
| Gas Pipelines - Public Awareness | Gas pipeline safety is critical - not just for your employees but for public safety as well. Therefore, it is imperative that gas operators have an effective awareness program to inform the public; public officials; emergency responders; as well as excavators as to the location and safe work practices around gas pipelines and what to do in an emergency. This course details Title 49 CFR 195.440 and will help operators of both natural gas and hazardous liquid pipelines to develop and implement public awareness programs consistent with the regulations and API RP 1162. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Gears - Overhaul | The purpose of this course is to provide participants with an overview of gearbox disassembly and reassembly. Replacing damaged gearbox components is an important part of a maintenance technician's job. Understanding how to safely and properly disassemble and reassemble a gearbox is essential to any gearbox repair or overhaul. At the completion of this course, participants will be able to describe checks, measurements, and installation procedures for gearboxes. | 1 | Intermediate |
| Gears - Types and Characteristics | Gears are found in many types of equipment in industrial facilities. They are vital components, and a gear problem can cause a whole operation to come to a complete stop. This course covers what gears are, how they work, and different types found within industry. It also provides an overview of problems that may affect gears and how to prevent them. | 1 | Intermediate |
| Gender Identity: Changes Organizations are Making to Increase Awareness | Gender identity awareness is necessary to ensure equal respect and fair opportunities for everybody. So what does this mean for your organization? While every entity is unique and should consider the needs of their individual workforce, this course provides some basic steps you can take to better increase gender identity awareness. | 0.2 | Intermediate |
| Gender Identity: Understanding Gender-Neutral Restrooms in the Workplace | A gender-neutral restroom is, when we think about it, a simple idea. We use them in our homes without a second thought. However, in a workplace environment they are a topic of debate. This course will help you understand why gender-neutral restrooms matter and how they work. | 0.2 | Intermediate |
| Gender Identity: What does LGBTQIA+ mean? | When discussing gender identity and sexual orientation it's common to hear acronyms used to reference different groups, orientations, and identities. For several years, the most common acronym was LGBT, however to be more inclusive the acronym has evolved into many different forms. In this course we'll help you understand the pieces that make up the LGBTQIA+ acronym. | 0.2 | Intermediate |
| General Electrical Hazard Awareness for Site Safety | Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization. | 1 | Intermediate |
| Get It Done: Managing Email | "Take Control Of Your Inbox! For many people email is a source of stress, when it really should be a valuable productivity tool. In this course well show you how to combine email best practices with the tools in Microsoft Outlook in order to effectively manage your email." | 1 | Fundamental |
| Get It Done: Sharing Calendars | "How Do You Let Everyone Know Whats Going On? Its a common situation: you're working in an organization or department, and you need to share a calendar with your team. Whether its staffing schedules or company holidays, this course will demonstrate ten different ways you can share a calendar among your coworkers, including both physical (printed) and online calendars." | 1.5 | Fundamental |
| Get SMARTER with Goals | What is the difference between someone who simply has goals and someone who actually achieves their goals? The key isn't to work harder, it's to work SMARTER! The SMARTER goal setting system is the evolution of the SMART goal setting system that was introduced in the 1980's. In this course you will learn how to apply the S.M.A.R.T.E.R. goal setting system. You will understand the definition of each letter of the acronym S.M.A.R.T.E.R. and view real world examples of how it is applied to goal setting. In addition, you will have the opportunity to apply it to set your own goals and apply the methodology. Finally, you will be provided with additional strategies for achieving your goals. | 0.5 | Intermediate |
| Giving Feedback that Gets Results | Tired of giving feedback that falls on deaf ears? Learn how to give feedback that gets fantastic results with this effective leaders guide. Feedback can be much more than a criticism at the end of an event, in fact feedback can be both positive and negative and needs to be given not only strategically, but also consistently. Develop the skills to do exactly that through application exercises and a rich multimedia process. | 0.75 | Intermediate |
| Gmail Essentials 2015 | Power Your Gmail Account. Get The Maximum Benefit From All The Tools Gmail Has To Offer. Gmail Is One Of The Most Often Used, Under-Utilized Applications In The World. This Course Will Change The Way You Use Your Gmail Account - Guaranteed! | 2.25 | Fundamental |
| Green Building: Commercial High Performance Guidelines Part 1 | What is a high performance "green" commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, "green" commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures. | 5 | Intermediate |
| Green Building: Commercial High Performance Guidelines Part 2 | "Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance ""green"" commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course." | 4 | Intermediate |
| Green Design: Economics of Green Building | In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies. | 2 | Intermediate |
| Green Design: Introduction to High Performance Building Design (Based on LEED v4) | "There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable building design is also understanding th requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C)." | 3 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4) | There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C). | 2 | Fundamental |
| Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4) | "In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve.<br>We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system." | 1 | Fundamental |
| Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4) | "<br>This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced.<br>The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced.<br>Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed." | 2 | Fundamental |
| Green Design: Introduction to Sustainable Water Systems (Based on LEED v4) | "The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places." | 2 | Fundamental |
| Green Design: Sustainable Daylighting Design (Based on LEED v4) | " Daylighting can be one of the most difficult "tools" in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits." | 1 | Intermediate |
| Green Landscape Design: Reducing the Urban Heat Island Effect | As the earth's average temperature increases, cities, which are often significantly warmer than the surrounding landscapes (the urban heat island effect), will be faced with higher energy needs, increased pollution and degradation of air quality. The world is becoming more and more urban - it is estimated that within 50 years 80% of the world's population will live in urban areas. This interactive online course will address how we can mitigate the heat island effect so our urban cities remain healthy, economically viable places to live. | 2 | Fundamental |
| Ground Fault Circuit Interrupters | Normally, electric current is designed to flow through circuits at levels predetermined to be safe and return to the power source. Occasionally, conditions are created where the current amount or path is altered from the specified design. This course describes differences in the types of abnormal current flow that can occur within an electrical circuit because of the altered conditions and how ground fault circuit interrupters can protect against electrical shock. | 1 | Intermediate |
| Grounding | Grounding is the chief means of protecting life and property from electrical hazards such as lightning, line surges, short circuits, and ground faults. Grounding also helps ensure the proper operation of a system. This course provides an overview of what grounding is, why it is necessary, and effective grounding techniques. | 1 | Intermediate |
| G-Suite Essentials (Google) | Learn How 11 Tools from Google Can Boost Your Productivity. G-Suite (aka Google Apps and Google Drive) is more than just cloud-based email. This powerful and popular cloud-based suite includes apps to help you illustrate, communicate, collaborate, and organize your work - or your life. In this course, we'll cover the top features you'll find in your G-Suite. | 2.25 | Fundamental |
| Hand and Power Tools | The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines. | 0.38 | Intermediate |
| Hand Safety | Imagine performing daily activities such as writing, driving a car, or using a phone without your hands. Because hands are used so frequently, hand safety can be taken for granted. The construction and manufacturing industries pose a particular risk to the hands due to the size and complexity of the equipment and machinery present. This course will provide general hand safety awareness and discuss techniques for avoiding common hand injuries. | 0.25 | Intermediate |
| Hand Tools, Part 1 | Hand tools are used every day in construction, manufacturing, and industrial settings as well as for do-it-yourself projects at home. Hand tools can make it safer and easier to do many different kinds of jobs. This course discusses the proper use and general care of a wide variety of hand tools.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hand Tools, Part 2 | Maintenance mechanics work with a variety of hand tools to perform many jobs, so it is important for mechanics to understand the function and care of common hand tools. Mechanics should know how to select the correct tool for any given job and how to use tools efficiently and safely. This course discusses the proper use and general care of pliers, vises, clamps and punches. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hand Washing and Hygiene | Each year in the U.S., food contamination leads to millions of illnesses and thousands of deaths. Salmonella poisoning, E. coli, Listeria, Hepatitis, and Norovirus can all be contracted by poor hand hygiene and can have potentially deadly consequences. Knowing proper hand hygiene techniques, the routes of hand contamination, the importance of the time spent washing the hands, and the difference between soaps and sanitizers will help keep you and your co-workers safe from the many food borne illnesses that surround us. | 0.25 | Intermediate |
| Hazard Communication GHS | Many workplaces use hazardous chemicals. But, its not always easy to understand the various labeling requirements for these chemicals and the information provided to employees about the hazards these chemicals present. Concern and confusion about these issues increased when OSHA updated its Hazard Communication Standard in 2012 so HazCom would more closely align with the Globally Harmonized System (GHS). This course provides an overview of the key issues covered in the Hazard Communication Standard, including the 2012 revision to align with GHS, and provides the information that employees need to know about the labeling of hazardous chemicals in all parts of their product cycle. | 0.5 | Intermediate |
| Hazard Perception - Hidden Hazards | Hidden hazards are not easily identifiable. They are partially or completely hidden from your view, but still have the potential to develop into a risk. Because the hazard is partially or completely hidden, it is unlikely you will be able anticipate the risk far in advance. This course will identify examples of hidden hazards and best practices to reduce the risks of these hazards. | 0.25 | Intermediate |
| Hazardous Material Classifications | To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). The Hazard Communication Final Rule (HazCom 2012) is aligned with the Globally Harmonized System of Classification and Labeling of Chemicals, or GHS, which provides standard criteria for determining chemical hazards to ensure different manufacturers and importers classify hazards similarly. This module will focus on the hazard classes defined by HazCom 2012. | 0.5 | Intermediate |
| Hazardous Material Labeling | "People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). Hazardous material labeling is a key element of the HCS. This module will cover the labeling requirements of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and alternative workplace labeling options." | 0.5 | Intermediate |
| Hazardous Material Storage | People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. The risk of being exposed to a hazardous chemical is greatly reduced when the chemical is handled and stored according to manufacturer recommendations and in compliance with facility standards. This module will present best practices for the safe storage of hazardous chemicals. | 0.25 | Intermediate |
| Hazardous Waste Essentials | Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention. | 1 | Intermediate |
| Hazardous Waste: Treatment | Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste. | 1 | Intermediate |
| HAZWOPER Air Monitoring | Airborne contaminants present the greatest danger to hazardous waste and emergency response workers. Air monitoring is required to identify and quantify airborne hazards, so appropriate protective measures can be implemented. An air-monitoring plan must be included as part of a site-specific Health and Safety Plan (HASP). This module will discuss the requirements of an air monitoring plan, the sensors used to detect hazardous conditions, and what actions should be taken based on monitoring results. | 0.6 | Intermediate |
| HAZWOPER Chemical Protective Clothing | Chemical protective clothing is often required when responding to emergencies involving hazardous materials. This module describes the various types of chemical protective clothing used during hazardous waste operations and emergency response. | 0.38 | Intermediate |
| HAZWOPER Chemical Protective Clothing Selection | Chemical protective clothing is selected by comparing its capabilities and limitations to the hazards and required tasks. It is important to remember that no material is completely chemical resistant, and no material is effective for all chemicals. This module will describe important factors for selecting appropriate chemical protective clothing. | 0.43 | Intermediate |
| HAZWOPER Confined Spaces | All hazards typically found in regular work areas can also be found in confined spaces, but there are additional hazards that make confined spaces more dangerous. Confined spaces that present safety or health hazards require a permit for entry, so they are called permit-required confined spaces. This module will describe OSHAs permit-required confined space regulations and typical confined space emergency response procedures. | 0.51 | Intermediate |
| HAZWOPER Decontamination | Decontamination, or decon for short, is the removal of hazardous materials from workers and equipment to prevent adverse health effects. It is critical that all emergency responders are protected and off-site contamination is prevented. The correct approach must balance safety with responding in a timely manner to contain the incident. This module covers decontamination best practices. | 0.65 | Intermediate |
| HAZWOPER Emergency Response Plan | Planning is critical for safe, timely responses to hazardous material incidents. The HAZWOPER standard requires employers whose employees respond to releases of hazardous materials at any location to have a written emergency response plan. This includes both fixed-location employers like industrial facilities and those that deploy from a duty station to various locations, such as a fire department or emergency medical service. This module describes the required information in emergency response plans. | 0.46 | Intermediate |
| HAZWOPER ERG Introduction | The Department of Transportations Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries. | 0.38 | Intermediate |
| HAZWOPER Hazmat Physical Properties | The physical properties of a hazardous material provide information to help responders understand its behavior, whether in its container or after it has been released. This module describes the following physical properties: physical state, melting point, boiling point, vapor pressure, vapor density, specific gravity, expansion ratio, flash point, solubility, pH, reactivity, and toxicity. | 0.33 | Intermediate |
| HAZWOPER Incident Command System | An incident is any event that requires emergency response to protect life or property. OSHAs HAZWOPER standard requires all organizations that handle hazardous materials to use the Incident Command System (ICS). The ICS is a component of the National Incident Management System (NIMS) that provides a standard approach for incident management. ICS allows for the integration of facilities, equipment, personnel, procedures, and communication systems within a common organizational structure. ICS enables a coordinated response among various agencies, both public and private, and it establishes common processes for planning and managing resources. This module describes all aspects of the incident command system. | 0.7 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| HAZWOPER Ionizing Radiation Safety | Radiation is energy emitted from a source that travels through space in a straight line at the speed of light. We are surrounded by radiation. Sunlight, radio waves, microwaves, and cell phone signals are all forms of low-energy radiation. These types of radiation are considered non-ionizing radiation and are relatively harmless. Ionizing radiation is radiation in the form of particles or electromagnetic waves that have enough energy to remove electrons from atoms in materials they strike. This module will focus on ionizing radiation, which can be hazardous. | 0.56 | Intermediate |
| HAZWOPER Medical Surveillance | HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and aren't experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed. | 0.4 | Intermediate |
| HAZWOPER Overview | Unexpected releases of hazardous materials pose a significant risk to workers and the general public. There are many causes of unexpected releases, such as human errors, equipment failures, or even natural disasters. To protect workers who work with hazardous materials, the Occupational Safety and Health Administration (OSHA) created the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). This module provides an overview of the HAZWOPER standard, who it applies to, and its requirements. | 0.35 | Intermediate |
| HAZWOPER Release Mitigation | "Emergency release response actions can be divided into three main steps:<br>1. Identify the materials that have been released<br>2. Assess the severity and risk and<br>3. Select and implement methods to mitigate the release.<br>Material identification and risk assessment are covered in other modules. This module focuses on the third step, release mitigation methods and their applicability." | 0.51 | Intermediate |
| HAZWOPER Respirators | Respirators are required when working around hazardous materials that present an inhalation hazard. A respirator is a personal protective device that covers at least the nose and mouth to reduce the amount of contaminated air inhaled by the user. This module will discuss the types of respirators typically used for hazardous waste operations and emergency response. | 0.7 | Intermediate |
| HAZWOPER Risk Assessment | The top priority of incident response is the safety of responders and the general public. Risk assessment is the most important aspect of an incident response because the incident cannot be managed safely if the problem and risks are not understood. Failure to do a risk assessment can result in serious injuries or death. Each incident is unique, so deciding what to do and when, can be difficult. This module will cover various hazard identification techniques to help you make better decisions when responding to hazardous material incidents. | 0.53 | Intermediate |
| HAZWOPER Safety and Health Program | HAZWOPER requires employers to have a written, site-specific safety and health program. The program must be designed to identify, evaluate, and control health and safety hazards and provide emergency response information. This module will provide an overview of the required safety and health program elements. | 0.25 | Intermediate |
| HAZWOPER Site Control | Whether responding to an emergency or cleaning up hazardous waste, control of the work site is essential. Each site is unique and many factors must be considered when securing it, including the hazards present, size of the site, and the proximity of the surrounding community. The movement of people and equipment at the site must be carefully managed to minimize worker exposure and protect the public from hazards. This course describes practices and procedures for establishing and maintaining control of the site. | 0.61 | Intermediate |
| HAZWOPER Toxicology | A chemicals ability to cause adverse health effects in people or animals is indicated by its toxicity. The more toxic a substance is, the smaller the dose required to produce a damaging effect. This module will help you better understand toxicity and exposure limit information so you can prevent dangerous exposures. | 0.51 | Intermediate |
| HAZWOPER: Operations | "OSHA has established several levels of training under the umbrella of HAZWOPER (Hazardous Waste Operations and Emergency Response). HAZWOPER training is required for personnel that may potentially be exposed to hazardous materials and for those involved in spill cleanup operations. OSHA defines HAZWOPER through their General Industry Regulation Title 29, section 1910.120, also known as 29 CFR 1910.20. This regulation defines several operations where HAZWOPER training is required. The Operations portion of the HAZWOPER training will cover the following: Levels of training which must be completed, Emergency plans and hazardous waste informational sources, Responses to various hazardous waste sources, Medical surveillance programs, Site monitoring, engineering controls and work practices , Personal Protective Equipment (PPE)" | 1 | Intermediate |
| Health Effects Caused by Mold | In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans. | 1 | Fundamental |
| Healthy Practices: Nutrition, Exercise, and Safety | We all know it is important to have healthy habits in our lives, but there is a big difference between knowing, and doing. Through application exercises and a rich multimedia process, this course teaches simple strategies to help you implement simple daily practices that lead to a healthy life. | 0.5 | Intermediate |
| Hearing Conservation | Protect one of your most valuable senses with a better understanding of the anatomy of the ear, how sound works, how the ear interprets sound, the effects of noise on hearing, and annual audiometric testing. Learn how to avoid occupational hearing loss by choosing and using the right hearing protection for your job, such as ear muffs and ear plugs. | 0.67 | Intermediate |
| Heat Exchanger Basics | Heat exchangers are typically used to transfer heat between fluids using conduction, convection, and radiation. This course details the three heat transferring methods used by heat exchangers as well as how heat exchangers are classified. It also illustrates common heat exchangers types such as shell-and-tube, plate, extended surface, and regenerative heat exchangers. | 0.25 | Intermediate |
| Heat Exchangers: Condensers and Reboilers | There are many different types of shell-and-tube heat exchangers, and each one is designed to accomplish a specific function in a process. In this interactive, online course, you will explore condensers and reboilers, two shell-and-tube heat exchangers that are designed to do specific jobs. | 0.5 | Intermediate |
| Heat Exchangers: Cooling Towers | "In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons,<br>it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling<br>tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower." | 0.5 | Intermediate |
| Heat Exchangers: Operation of Shell and Tube Types | "Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger." | 0.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Heat Stress Causes | Heat stress is a serious concern in many workplaces. Every year heat stress affects thousands of people, and some die as a result. This course provides the information you'll need to beat the heat and keep yourself and other workers safe. You'll learn about the different types of heat stress, from the least severe (heat rash) to the most severe (heat stroke). It will explain how the body reacts to heat, and the causes of heat stress. Finally, it will list some factors that affect how individuals tolerate heat. | 0.25 | Intermediate |
| Heat Stress Symptoms and Prevention | Heat stress can take a number of different forms, including heat rash, heat cramps, heat syncope (fainting), heat exhaustion, and heat stroke. Each of these conditions has its own signs, symptoms, and treatments. This course will help you to recognize each condition, and to know which ones require simple corrective actions, like taking a break, and which ones may require a trip to the hospital. | 0.4 | Intermediate |
| Heating Systems Basics | "Heating systems are one of the many ubiquitous conveniences of modern life. For many of us, central heating systems have always been a part of our lives.We only seem to notice heating systems when they are malfunctioning. Yet it took inventors and scientists to discover and understand heat transfer to then apply these principles for us to depend upon reliable heating systems. It behooves design engineers, operators and maintenance personnel to have a basic understanding of a few heat transfer concepts to ensure proper operation of heating systems. This interactive online course will discuss three types of heat transfer; convection, conduction and radiation. It will show how heating systems operate utilizing these forms of heat transfer acting in concert with each other. The operation of hot water and steam boilers along with electric heater will be examined. Finally, a brief explanation of controls for heating system will be presented." | 0.5 | Fundamental |
| Heating Theory | Did you know without proper control of boiler water chemistry, corrosion, scale buildup and fouling of boiler tubes can occur which will impact boiler efficiency and may result in tube failures? Boilers are a common device for converting fuel into heat by burning fuels for heating water and generating steam for heating and powering equipment. The two general types of boilers are hot water boilers and steam boilers The water used in boilers has to process the correct chemical makeup to prevent corrosion, scaling and fouling of boiler internal parts. This interactive online course covers the theory of heat transfer. It will cover the three laws of Thermodynamics, methods of heat transfer, how heat is measured and the pressure -temperature relationships in heating systems. | 0.5 | Fundamental |
| Heavy Equipment Safety Introduction | Heavy construction equipment is extremely productive. The size and power of these machines however, presents a degree of risk to the men and women who operate and work around them. This course will cover the basics for remaining safe around heavy equipment as well as some specific concepts and guidelines for you to follow when working with and around heavy construction equipment. | 0.75 | Intermediate |
| Heavy Equipment Visibility | When operating heavy equipment, the driver's view is likely to be blocked in several directions. These "blind spots" can even obscure a person standing right next to the equipment. One wrong move and that person could be injured or even killed. But these incidents do not have to happen. This module will discuss how to safely operate and work around heavy equipment to avoid injuries. | 0.25 | Intermediate |
| Heavy Truck Braking System and Braking Techniques | The single most important component in any vehicle is the braking system, especially on heavy trucks. The tractor portion of a tractor-semi trailer rig may have ten or more valves controlling the air flow to the brakes. This program reviews the types of braking systems found on large trucks versus cars and illustrates the importance of properly maintaining the braking system. | 0.25 | Fundamental |
| HEPA High Efficiency Filters | This webcast covers essential information regarding HEPA high efficiency filters and their importance in HVAC air handling systems. The course will include technical information about HEPA filters, as well as how HEPAs are constructed, tested, and maintained. We will also cover documentation regarding testing and maintenance of this important HVAC system component. | 1 | Fundamental |
| Hexavalent Chromium | Protect yourself and your team from increased risk of cancer with our training designed to raise awareness about the dangers of hexavalent chromium exposure. Welders and other workers who handle or assemble electronic components may be at higher risk of exposure to this known human carcinogen. Learn what hexavalent chromium is, how it's formed, the health hazards it presents, and what personal protective equipment you can use to protect yourself. Our training will also give you a better understanding of OSHA permissible exposure limits, monitoring, record keeping, medical surveillance, and employee notification. You'll also learn about industry best practices related to engineering and administrative controls to protect workers from dangerous exposure to hexavalent chromium. | 0.5 | Intermediate |
| Hiring Practices | Is she married? Do we have to post externally? These and other potentially loaded questions often appear during discussions regarding hiring. It is vital to understand what is appropriate and what is not when hiring practices is the name of the game. However, more than simply providing information, this course will take you through application exercises and provide a rich multimedia experience so that you can immediately apply what you have learned to your current situation. | 1.25 | Intermediate |
| Hot Water Boilers | Boilers are fuel-burning appliances that produce either hot water or steam that gets circulated through piping for heating or process uses. The boiler operator is responsible for the safe and efficient operation of the boiler system and with proper maintenance, a hot water boiler will provide reliable heat and hot water to facilities for many years. This interactive online course explains how a boiler works and the different types of boilers. It describes the responsibilities of a hot water boiler operator and the short- and long-term inspections and maintenance for boiler systems. | 0.5 | Fundamental |
| Hot Work Safety | This course covers basic guidelines and best work practices for performing hot work safely. Before welding, cutting, or brazing metal or performing any work that could generate enough heat or sparks to start a fire, everyone involved should be properly trained on the fundamentals of hot work safety. Based on NFPA 51B and 29 CFR Subpart Q regarding welding, cutting, brazing, and other hot work, this course is intended to help workers recognize the potential hazards of hot work and avoid injuries and property damage by properly planning, preparing for, and performing hot work. | 0.47 | Intermediate |
| HVAC - Air Side: Air Balance Basics | A Heating, Ventilation and Air Conditioning system (HVAC system) is a group of components working together to "condition" the air in an enclosed space. The components ensure that the air in this space is clean and odor free, and that its temperature, humidity and circulation rate are maintained within desired ranges. This interactive online course focuses primarily on what an HVAC system air balance is, and how to achieve one. | 0.5 | Fundamental |
| HVAC - Air Side: Air Distribution | Do you know the meaning of the term "building static"? How about "flow balancing"? The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. An HVAC system is a group of components working together to "condition" the air in an enclosed space. This interactive online course focuses primarily on the components that move, distribute, and control the flow of air through HVAC systems. | 0.5 | Fundamental |
| HVAC - Air Side: Air Handling in Commercial Buildings | "The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This interactive online course focuses primarily on the components which condition and move the air that flows through HVAC systems." | 0.5 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| HVAC - Air Side: Hot & Cold Calls | "There are a number of skills needed by any individual who responds to the hot and cold calls made by uncomfortable occupants of a building. First, a person must have a complete understanding of the HVAC system in question. Second, they need to have some training in methodical problem-solving techniques or troubleshooting. Finally, the individual requires "people skills", that is, the ability to interact with sometimes-frustrated clients without becoming defensive, angry or unpleasant. In this interactive online course, we will focus on how to methodically approach solving comfort-related problems. We will also discuss some best practices for handling customer interactions during hot and cold calls." | 0.5 | Fundamental |
| HVAC - Air Side: Introduction to Air Handlers | Did you know some air handlers have an airside economizer mode that will delay or eliminate the need for mechanical cooling if the outside air is cooler? The components, in an HVAC system, ensure that the air in this space is clean and odor free, and that its temperature, humidity and circulation rate are maintained within desired ranges. This interactive online course cover the components of an air handler, the operational functionality of an air handler, the methods of air handler maintenance, and the benefits and operation of an outside air economizer. | 0.5 | Fundamental |
| HVAC - Air Side: Terminal Units | "The purpose of Heating, Ventilation and Air Conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. Residential, commercial, and industrial facilities use HVAC systems. An HVAC system is a group of components working together to "condition" the air in an enclosed space. The components ensure that the air in this space is clean and odor free, and that its temperature, humidity, and the circulation rate is within desired ranges. This interactive online course focuses primarily on the terminal units, or VAVs, that increase the efficiency and add flexibility to an HVAC system." | 0.5 | Fundamental |
| HVAC - Air Side: Variable Air Volume (VAV) Systems | How can you increase the efficiency of an HVAC system? The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. This interactive online course focuses primarily on the terminal units, or VAVs that increase the efficiency and add flexibility to an HVAC system. | 0.5 | Fundamental |
| HVAC - Heating and Cooling | HVAC systems are used to maintain clean, conditioned air in enclosed spaces. The term "conditioned" refers to the fact that the temperature and humidity of the air are maintained within desired ranges. This module describes the two most common cooling systems as well as heating devices used in HVAC systems. | 0.5 | Intermediate |
| HVAC - Hot Water and Ventilation | The purpose of heating, ventilation, and air conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial, and industrial facilities. This module contains information on hot water heating systems, air distribution systems, and HVAC control systems. | 0.5 | Intermediate |
| HVAC Acoustics | What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics. | 3 | Fundamental |
| HVAC Basics | The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and allow temperature- or humidity- sensitive equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This module will identify safe work practices to use when working around HVAC systems and the most common HVAC system components. | 0.25 | Intermediate |
| HVAC HEPA Filters | HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms. | 1 | Fundamental |
| HVAC System Fans | Centrifugal or Axial? Do you know how to select the best fan for your project? This interactive online course presents critical information regarding HVAC fans, motors and controls that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fan fundamentals, various types of fans, performance curves, fan vibration and sound, as well as drive motors and VFD drive systems. This course will serve as an important reference for people involved in HVAC fans design, selection, and installation, as well as operations. | 3 | Fundamental |
| HVACR Type I Certification | Type I certification requires that technicians know how to safely and properly evacuate refrigerants from "small appliances" containing 5 pounds or less of refrigerant using the appliance's compressor, system pressure, or self-contained recovery equipment. This interactive online course will cover these evacuation procedures, as well as how to deal with contaminants in a system and safety considerations. | 0.5 | Intermediate |
| HVACR Type II Certification | Did you know HVAC and Refrigeration technicians who maintain, service, repair, or dispose of medium, high, and very high pressure appliances containing more than five pounds of a controlled refrigerant must pass the EPA's Section 608 Type II certification exam? Type II certification requires that technicians understand several topics related to these systems, including leak detection, leak repair, evacuation requirements, recovery techniques, refrigeration, and safety. This interactive online course will cover the appliances included in the EPA Section 608 Type II certification exam, explain the techniques that are used to recover refrigerants, list evacuation requirements, and cover safety considerations for working with or around refrigerants, recovery equipment, and HVAC and Refrigeration systems | 0.5 | Intermediate |
| HVACR Type III Certification | Did you know Type III appliances differ from Type II appliances in that they operate in a vacuum on their low-pressure sides and sometimes on their high-pressure sides, which affects what happens when they develop a leak? When a Type III appliance develops a leak in a location that is under vacuum, air and/or moisture leaks in. In this interactive online course, we will cover the EPA 608 Type III certification exam, the techniques that are used to recover refrigerant, evacuation requirements and safety considerations for working with or around refrigerants. | 0.5 | Intermediate |
| Hydraulic Fluid Safety | This course covers basic guidelines and best practices for working safely around common hydraulic equipment. From bottle jacks to forklifts and shop equipment, this course provides important information on the principles of hydraulics and the hazards that hydraulic systems can present. Based on OSHA documents and industry experience, this course is designed to help workers understand how to recognize common hydraulic hazards and avoid serious injuries. | 0.47 | Intermediate |
| Hydraulics: Actuators | This course is designed to familiarize participants with the various types of actuators that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of single-acting cylinders, double-acting cylinders, vane motors, gear motors, piston motors, and partial rotation actuators. | 2 | Intermediate |
| Hydraulics: Component Inspection and Replacement | This course is designed to familiarize participants with typical procedures for removing, inspecting, reassembling, and reinstalling hydraulic system components. After completing this course, participants should be able to describe how to remove, inspect, reassemble, and reinstall hydraulic valves, pumps, and cylinders. | 2 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hydraulics: Diagrams | This course is designed to familiarize participants with hydraulic system schematic diagrams. After completing this course, participants should be able to interpret symbols that are used on hydraulic system schematic diagrams and use schematic diagrams to trace fluid flow through various types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Fluid and Reservoirs | This course is designed to familiarize participants with the fluid used in hydraulic systems and with the basic functions and uses of filters and strainers, reservoirs, conductors, and accumulators. After completing this course, participants should be able to describe the functions, characteristics, and types of fluid that may be used in hydraulic systems. They should also be able to describe typical uses of filters and strainers, describe the components and accessories of typical reservoirs, describe various types of conductors and fittings, and describe the basic functions and common uses of accumulators in hydraulic systems. | 2 | Intermediate |
| Hydraulics: Principles and Circuits | This course is designed to familiarize participants with the principles of hydraulic system operation and with the components and operation of some typical hydraulic circuits. After completing this course, participants should be able to explain how force is transmitted through a liquid and how pressure and flow are related in a hydraulic system. They should also be able to describe the main components and basic operation of several types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Pumps | This course is designed to familiarize participants with the various types of pumps that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of gear pumps, vane pumps, and piston pumps. | 2 | Intermediate |
| Hydraulics: Routine Maintenance | This course is designed to familiarize participants with tasks associated with the routine maintenance of hydraulic systems. After completing this course, participants should be able to describe general considerations associated with routine maintenance. They should also be able to describe procedures for performing external inspections and for maintaining some system components. | 2 | Intermediate |
| Hydraulics: Troubleshooting | This course is designed to familiarize participants with general steps for analyzing problems in hydraulic systems. After completing this course, participants should be able to explain how to identify problems in hydraulic systems and describe common problems associated with hydraulic system components. | 2 | Intermediate |
| Hydraulics: Valves, Part 1 | This course is designed to familiarize participants with the basic design and operation of various types of valves used in hydraulic systems. After completing this course, participants should be able to describe the functions of flow and pressure in a hydraulic system; and identify and describe various types of manually adjusted valves, sliding spool valves, and spring-biased valves. They should also be able to describe various ways in which valves can be actuated. | 2 | Intermediate |
| Hydraulics: Valves, Part 2 | This course is designed to familiarize participants with the functions performed by various types of valves used in hydraulic systems. After completing this course, participants should be able to describe how valves control flow rate, flow direction, and pressure in a hydraulic system. They should be able to describe the basic operation of a pressure-compensated flow control valve, a temperature-compensated flow control valve, various types of flow control circuits, a pressure reducing valve, a relief valve, a sequence valve, and a counterbalance valve. | 2 | Intermediate |
| Hydrogen Fluoride Safety | HF acid is used throughout industry every day, and in most cases, without ill affect. However, it's important to talk about the potential hazards of HF acid as well as the safe work practices when working or handling HF acid. This course will introduce and describe the characteristics and uses of hydrogen fluoride (HF). It will discuss the signs, symptoms, and health effects of HF. Safe work practices and first aid procedures will also be discussed. | 1 | Fundamental |
| Hydrogen Sulfide Awareness | Sometimes what you can't smell can hurt you. Protect yourself and your team with this critical information that raises awareness of what Hydrogen Sulfide (H2S) is and discusses exposure risks and effects, toxicity, ignition, detection, prevention, and evacuation. | 0.25 | Intermediate |
| Hydronic System Basics | "Hydronic heating and cooling systems move water around in order to transfer heat and cooling. Pump and heat exchangers are key components in hydronic systems. This interactive online course covers centrifugal pumps, including their construction and operation, as well as heat exchanger technology, construction, and operation." | 0.5 | Fundamental |
| Hydronic Systems: Architecture and Operation | "Hydronics is a means of heating and cooling using a fluid as the heat transfer medium. Historically, in large-scale commercial buildings, the Heating, Ventilating and Air-Conditioning (HVAC) systems utilize water-based hydronic designs. In this interactive online course, we will describe the differences among the different types of hydronic systems. We will discuss expansion tanks and their role in a hydronic system. We will also discuss make-up water systems, air elimination, meters, and gauges." | 0.5 | Fundamental |
| Hydronic Systems: Cooling Tower Basics | "Did you know dry-coolers can only take advantage of the difference between the water temperature and the dry-bulb temperature, so they cannot support the temperature needs of most refrigeration systems? This interactive online course has been created with the practical user of water based (hydronic) heating and cooling systems in mind. The goal is to introduce and understand one of the most basic elements in a hydronic cooling system: The cooling tower. Here we will convey the fundamentals of the means of heat rejection so that you can responsibly and confidently manage and operate buildings that utilize such systems. The objectives of this course are to understand open tower construction and operation; fluid cooler construction and operation; and to provide an overview of water treatment basics." | 0.5 | Fundamental |
| Hydronic Systems: Cooling Tower Operation | "Did you know water quality significantly affects the efficiency, maintenance requirements, and service life of evaporative cooling system equipment? Water treatment is important for efficient cooling tower operation. Water hardness, alkalinity, pH, TDS, and TSS all need to be measured and controlled to prevent scale, corrosion, and biological growth. This interactive online course cover the practical user of water based heating and cooling systems. The goal is to introduce and understand the operation of one of the most basic elements in a hydronic cooling system, the cooling tower." | 0.5 | Fundamental |
| Hydronic Systems: Pumps and Pumping Systems | "Hydronics is a means of heating and cooling using a fluid as the heat transfer medium. Hydronic systems include heating water systems, chilled water-cooling systems as well as some process and domestic water distribution systems. Cooling may be provided by an air-cooled chiller or a water-cooled chiller, and heating is often provided using a hot water boiler. There are numerous pump types for hydronic systems that move fluids, and their construction and operation are dictated by the type of fluid they are moving. In this interactive online course, we will focus on rotodynamic pumps, and more specifically centrifugal pumps, since they are the most common in commercial building systems." | 0.5 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| IICRC 7 Hour General Mold Program | This is a 5-part, interactive course. Part one of this course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. The mold remediation industry is expected to follow the "Standard of Care". Who defines what that is? Where can it be found? Who is the enforcer? Part 2 of this course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure. Part 3 of this course examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. Part 4 of this course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap. Part 5 of this course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms. | 7 | Fundamental |
| IICRC 7 Hour Mold Health Effects and Science Program | This program covers how mold growth can affect the health and safety of building occupants. The program also gives a little bit of a scientific background of mold. This program has 5 lessons with a test at the end of each lesson which must be passed with a score of 70% or better to move on to the next lesson. The 5 lessons are:Lesson 1: More Than Mold -Health Effects Associated With Mold and Water DamageLesson 2: Health Effects Caused by MoldLesson 3: Mold Safety and HealthLesson 4: The Science of MoldLesson 5: Mold Sampling | 7 | Fundamental |
| IICRC 7 Hour Mold Remediation Program #1 | This is a 7-part, interactive course. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. In part 1, we will visit the terminology and the recent trends to equip you to make better decisions for your team and project. Part 2 will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. Part 3 of this course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. Part 4 of this course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. Part 5 will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. Part 6 shows you how to "set the bar" so the technicians know what to do, clients are happy, and each project has a better chance of profit and success. Part 7 covers equipment to use, how to use it, and how to take care of it. This course allows you to quickly learn from practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list. | 7 | Fundamental |
| Improving Work Habits: 01-Performance Issue or Poor Work Habit? | Distinguish between a performance issue and a poor work habit, which require a different problem-solving process. | 1 | Intermediate |
| Improving Work Habits: 02-Describing the Work Habit | Practice describing the team member's poor work habit focusing on behavior and fact, not attitudes or opinions. | 1 | Intermediate |
| Improving Work Habits: 03-Keep Ownership with the Team Member | What you should say in the context of work habit discussions when team members try to deny responsibility for the poor habit. | 1 | Intermediate |
| Improving Work Habits: 04-How Would You Empathize? | Use empathy in your discussions is important for team member self-esteem and buy-in. | 1 | Intermediate |
| Improving Work Habits: 05-Your Path to Improving Work Habits | Learn and apply the five-step process for improving poor work habits shown by your team members. | 1 | Intermediate |
| Improving Work Habits: 06-Mastering Improving Work Habits | Practice Improving Work Habits in a full scenario situation. | 1 | Intermediate |
| Improving Work Habits: 07-Improving Work Habits Health Check | Test your ability to apply Improving Work Habits concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Increase Your Listening & Communication Power | Employees, Projects, and Even Entire Businesses Fail Because They Don't Communicate Effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible. | 1 | Fundamental |
| Increase Your Listening Power (Effective Communication) | Employees, projects, and even entire businesses fail because they don't communicate effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible. | 1 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Increasing Building Energy Efficiencies: Policies and Practice | While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EPAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings. | 2 | Fundamental |
| Industrial Pneumatic Technology: Aftercoolers, Driers, and Receivers | "Air compressors are used in industry to store compressed air or inert gases, which can then be used to power air motors, cylinders, and other pneumatic devices. Clean, dry air is essential for pneumatic systems to function properly, so it is important to remove moisture and contaminants to ensure optimum performance of the system.<br>In this interactive online course, we will identify some components of air compressors, including aftercoolers, dryers, receivers, and air distribution systems." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Air Preparation | "Pneumatic components and systems require compressed air that is free of contamination. No matter how well a system is designed, if contaminated air gets into the components, it can interfere with proper circuit operation.<br>In this interactive, online course, we will cover the types of contaminants that can be found in the air used in pneumatic systems and identify ways to clean it up." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Check Valves, Cylinders, and Motors | Selecting the right cylinders, check valves, and motors in pneumatic applications involves more than just picking them off the shelf. In this interactive online course, we will cover check valves and two types of pneumatic actuators: cylinders and motors. We will discuss the functions of each in a pneumatic system. We will also cover formulas used in sizing cylinders, cylinder volume, compression ratio, and more. | 1 | Intermediate |
| Industrial Pneumatic Technology: Compressors | In order to accomplish useful work with a pneumatic system, we need a device that can supply a sufficient amount of air at a desired pressure. The device that performs this function is called a compressor. In this interactive online course we will describe the principles of air compressor operation and give you details about the types of positive displacement and dynamic air compressors. We will instruct you in identifying compressor capacity and we'll give you parameters for selecting a compressor system. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Control of Pneumatic Energy | First off, energy that is transmitted through a pneumatic system must be directed and under complete control at all times. If it isn't, useful work may not be done, and machinery or machine operators could be harmed. In this interactive online course you will learn the basics of the pneumatic system, its operation, and its control. You will see diagrams of the components and get explanations for how the various parts work together. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Directional Control Valves | A directional control valve is an essential component that enables flow into different paths from different sources in hydraulic and pneumatic machinery. This fundamental part controls the stop, start and direction of flow. In this interactive, online course we will cover the different types of directional control valves and explain the methods used to classify these valves. We will discuss the use of poppet valves, and identify the different types of shear action valves. Lastly, we will discuss replacing valves and correct sizing for flow rate. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Energy Transmission | Do you know how compressors are used? Were you aware that gas is actually a fluid? In this interactive online course we will discuss the basics of gases and pressure. We will also discuss compressors and how pressure is measured. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Excess Flow Valves, Boosters, and Sequence Valves | How much do you know about Pneumatics? In this online, interactive course we'll be examining a few pneumatic components and showing how they can be used in some basic circuits. We'll begin with a definition and move through descriptions of the components and circuits. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Flow Control Valves, Silencers, and Quick Exhausts | "Flow control valves used in pneumatic circuits affect actuator speed. Understanding how flow control valves operate will allow you to increase or decrease flow rate to meet the needs of your pneumatic circuits.<br>This interactive online course will teach you about several types of adjustable flow control valves available. You will learn how flow control valves operate by reviewing different pneumatic circuit examples. Additionally, you will learn how an orifice is used to control flow rate. You will also learn about special purpose devices used in pneumatic circuits." | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Force Transmission | "Pneumatic systems work because of a special property of fluids and the way these fluids transmit force and pressure. Understanding how fluids transmit energy will allow you to maintain your pneumatic control systems at desired operating conditions.<br><br>This interactive online course will teach you about the different sources of pneumatic energy along with how force is carried through gases and liquids. Additionally, you will learn ways compressed air is used in pneumatic systems. You will also learn about calculation methods for determining how much pressure is generated in gases." | 0.5 | Intermediate |
| Innovative Heat Pump Technology | Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology. | 1 | Fundamental |
| Insulators | Insulators, or nonconductors, are materials with electrons that are tightly bound to their atoms and require large amounts of energy to free them from the influence of the nucleus. Examples of insulators are rubber, plastics, glass, and dry wood. This course introduces participants to electrical insulators and their physical properties. In addition, it describes the various uses of insulators as well as some of the materials that are used as insulators. | 1 | Intermediate |
| Intermediate Emergency Power Systems | Did you know if you let a diesel engine run entirely out of fuel it will be necessary to "bleed" the fuel injector lines? We will be looking at how and why a generator actually produces electricity, as well as how a diesel internal combustion engine works. We will carefully examine how the generator head, the internal combustion engine, and ancillary components, work together to provide emergency power when it's needed. We will also examine safe and effective maintenance practices regarding the generator and its' peripheral components. This interactive online course covers the steps to test and maintain a battery, the standard components which make up a generator system, the items to inspect before manually starting a generator and will explain how to inspect the coolant system. | 0.5 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Intermediate Maintenance Practices | Can you differentiate between an inner race and an outer race? What is Delta T? Heating and cooling systems require preventive maintenance to run efficiently. All motors and heat transfer equipment need to be kept clean, and bearings need to be properly lubricated. This interactive online course covers some common techniques for maintaining motors and electrical contacts, bearings, chillers, coils, and steam traps. | 0.5 | Intermediate |
| Intermediate Motors | To achieve long motor life, it is necessary to understand the different causes of motor failures, and how to operate and maintain motors to prevent these early failures. This interactive online course covers best practices for performing maintenance for the long-term reliability of AC and DC motors used in facilities and addresses the proper procedures for troubleshooting. Proper use of the tools and equipment required for motor maintenance such as winding testing, shaft alignment, and vibration monitoring/ analysis are also discussed. | 0.5 | Intermediate |
| Intermediate Water Treatment | "Over 90 percent of Legionnaires' disease cases are caused by Legionella pneumophilia, which is a harmful bacteria sometimes found in cooling water systems. Water treatment affects all of our everyday lives, from the water we drink to the sewage we flush, from the wash water we discharge to the cooling water used in manufacturing and in buildings. This interactive online course will cover intermediate water treatment in large buildings, and is directed toward the building manager or technician. Operation and maintenance of cooling towers and boilers will be discussed, along with control of water chemistry, dissolved oxygen, solids and bacteria that can lead to scaling, corrosion and fouling of water treatment systems, along with exposure to Legionnaires' disease." | 0.5 | Intermediate |
| International Building Code & More: Construction Types and Building Sizes | "Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved. " | 1 | Fundamental |
| International Building Code & More: Means of Egress | The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course.John Wiley & Sons, Inc. Copyright © 2011 All rights reserved. | 3 | Fundamental |
| International Building Code (IBC) - Assembly Spaces | "This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council." | 3 | Fundamental |
| International Building Code Significant Changes to 2012 Edition | "The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council" | 3 | Fundamental |
| Internet and Computer Policy | As the internet grows, a touch of the screen can take you through boundaries previously only dreamed of. But do you know which boundaries it is okay to cross (or even encouraged) versus which to not even mention to you that now exist? Using application exercises and a rich multimedia process, this course will take you through basic internet protocol to keep you and your employees safe and focused. | 0.5 | Intermediate |
| Interpersonal Communication | Interpersonal Communication is a course designed to help supervisors apply the listening and speaking skills that are basics for good interpersonal communication on the job. After completing this course, participants should be able to describe three basic levels of listening, identify common mental habits that are barriers to effective listening, and describe how to use awareness of nonverbal communication to ensure effective interpersonal communication. They should also be able to describe common types of ineffective responses, explain what empathic responses are and how they can be used for effective interpersonal communication, explain what constructive feedback is and describe how it can be used for effective interpersonal communication, and describe techniques that can be used to deal with people who become emotional on the job.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Interviewing Skills for Employees | What to wear? What to say? When to follow-up? The process of interviewing for a position can be nerve racking to say the least. Tell Me About Your Weaknesses takes you through a typical interview process and prepares you for the what you may encounter. Through application exercises and a rich multimedia process, you will learn top skills to ease your nerves and prepare you for any interview. | 0.5 | Intermediate |
| Interviewing Skills for Managers: Conducting an Interview | Can I ask this? Will she be a good fit? Who else should I invite to the interview? When you are on the other side of the table, there are still many questions to answer in order to have a good interview. Using application exercises and a rich multimedia process, you will learn the skills to conduct effective interviews in this timely course designed to help you get the right people in the right seats. | 0.5 | Intermediate |
| Interviewing the Right Way | "There is nothing more important in the hiring process than the interview. The interview is an exchange of information between the candidate and the interviewer. It provides the candidate with the opportunity to sell him/herself, and management with the opportunity to sell the position and the organization. The importance of selecting the BEST person for a position cannot be over emphasized. The interview provides an opportunity for you to brand your company in the eyes of the potential employee, and to determine if the candidate is the right fit. The interview is a crucial process, that if done correctly, will ultimately help move your business forward. But if done incorrectly, could be very damaging to your company. This interactive, online course will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. " | 0.5 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Interviewing the Right Way & Managing the Millenial (RV-PGM145) | The first module of this program will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. The second interactive module discusses how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun. | 1 | Fundamental |
| Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings | This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED). | 3 | Fundamental |
| Investigation of Failures | This interactive online course identifies common causes of equipment failures and the steps involved with prioritizing the failure events and conducting failure investigations. The learner will be introduced to several investigative analysis tools used to forensically exam the failure and the importance of maintaining equipment histories. | 0.5 | Intermediate |
| Irritants, Corrosives and Sensitizers | In this interactive online course, you will be introduced to the hazard classification and categories of an irritant, a corrosive, and sensitizer. In addition, you will learn how to identify these chemicals so you can protect yourself, and others, from them. Guidance for excessive risk will be given for these substances in the workplace. | 1 | Intermediate |
| It's my Job! Career Growth | While you may have a boss and frequent interaction with HR (Human Resources) your career is YOUR career and therefore YOUR responsibility to manage. In this instructive course, learn key steps to identifying what you want out of your career and how to make it happen through application exercises and a rich multimedia process. | 0.5 | Intermediate |
| Janitorial Safety | Janitorial workers have many varied responsibilities. It would be easier to talk about what tasks they DON'T perform, than what they actually do on a daily basis. Regardless of how many different tasks they perform or how busy they are, the simple truth is that their safety should be a companies top priority. This program trains your employees on how to identify the common hazards that janitorial staff face on a daily basis and the steps they can take to minimize risk. It also includes both English and Spanish versions on one DVD. Topics covered also include: Personal Protective Equipment, Back Injury Prevention,Bloodborne Pathogens, Slips, Trips and Falls, Electrical Safety, Chemicals | 0.25 | Fundamental |
| Job Hazard Analysis | This course provides basic guidelines for performing a job hazard analysis (JHA) in a variety of industrial workplaces. Based on industry best practices and OSHA guidelines, this course offers insights into why a JHA is a critical part of any safety program. From identifying common workplace hazards to accepted means of hazard control, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team. | 0.43 | Intermediate |
| Kirchhoff's Laws | Kirchhoff's two laws reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. This course introduces Kirchhoff's voltage and current laws and explains how to use these laws to calculate the voltage and current of circuits. | 1 | Intermediate |
| Kitchen Safety | With the kitchen being one of the busiest departments in your establishment, employees may be tempted to take shortcuts when it comes to safety. New and experienced kitchen staff will benefit from watching this program as they learn the potential hazards present in the kitchen environment and what action to take to reduce the risk of accidents or injuries.Topics covered also include:Prevention of slips, trips and fallsKnife use and safetyKitchen machineryFire and burn preventionChemical and hazardous materials | 0.25 | Fundamental |
| Lab Safety: Electrical Safety in the Laboratory | This interactive course on Electrical Safety in the Laboratory emphasizes the need for safety when using electricity, and discusses how to reduce the potential for accidents involving electrical shock, fire and explosions. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Flammables & Explosives in the Laboratory | This interactive course on Flammables and Explosives in the Laboratory discusses the nature of flammable and explosive materials, as well as hazards associated with their use. It also reviews the proper handling procedures and personal protective equipment that should be used when working with these substances. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: GHS Safety Data Sheets in the Laboratory | This interactive course on GHS Safety Data Sheets in the Laboratory reviews the composition of GHS Safety Data Sheets, the information that's contained in each section and how SDS's are different from Material Safety Data Sheets. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Handling Compressed Gas Cylinders in the Laboratory | This interactive course on Handling Compressed Gas Cylinders in the Laboratory examines how gas cylinders work, the hazards that are associated with them and the need for caution when using or storing a cylinder. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Laboratory Ergonomics | This interactive course on Laboratory Ergonomics discusses the need to set up work areas correctly, as well as how to minimize the strain of using laboratory equipment, tools and instruments. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Laboratory Hoods | MARCOM's interactive course on Laboratory Hoods emphasizes how to properly use laboratory hoods and how to test them to ensure correct functioning... as well as discusses how hoods can protect an experiment, the facility, and most importantly, the employee. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lab Safety: Orientation to Laboratory Safety | This interactive course on Orientation to Laboratory Safety shows both new employees and seasoned veterans the importance of safety in the laboratory... as well as reviews the OSHA regulations and good safety practices that apply to the laboratory environment. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: OSHA Formaldehyde Standard | This interactive course on The OSHA Formaldehyde Standard provides training that is required by this standard, and focuses on the rules and procedures that the standard establishes for working with this potentially dangerous chemical. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Planning for Laboratory Emergencies | This interactive course on Planning for Laboratory Emergencies discusses how to minimize damage and prevent injuries if an emergency should occur. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Preventing Contamination in the Laboratory | This interactive course on Preventing Contamination in the Laboratory emphasizes the need to recognize situations that could lead to contamination, and discusses what can be done to prevent contamination from occurring. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Safe Handling of Laboratory Glassware | This interactive course on Safe Handling of Laboratory Glassware discusses the nature of various types of glassware, and the problems it can cause... as well as the need for employees to use and maintain laboratory glassware safely. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Lab Safety: Safety Showers & Eye Washes in the Laboratory | This interactive course on Safety Showers and Eye Washes in the Laboratory reviews the correct ways to use this equipment, and emphasizes the need for quick action after a chemical splash or spill. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained. | 0.5 | Intermediate |
| Laboratory Safety (BBLASA0CEN) | This course looks at the hazards that are found within the laboratory and some ways to protect lab workers from those hazards. Also included is an overview of the OSHA Lab Standard, the elements of a Chemical Hygiene Plan, and some of the basic rules of good chemical hygiene. Chemical storage requirements and some general procedures to follow in case of an emergency are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Ladder Safety | Ladders are tools commonly used to gain access to higher levels that are otherwise unreachable. When maintained properly and used according to safety guidelines, they are a simple and effective tool. However, each year thousands of workers are either injured or killed in ladder related accidents. This course describes different types of ladders, as well as ladder construction, ladder selection, height requirements, weight capacity, hazardous conditions, inspections, ladder setup, safe practices when using ladders, storage, and maintenance. | 0.48 | Intermediate |
| Ladder Safety | How much training have you had to use, store, and maintain a ladder properly to prevent falls and injuries? Working on ladders is a necessary part of most jobs in construction, maritime, and general industry. However, the use and care of ladders are not always as easy as it appears for the worker. Training is necessary to know the tolerances of the ladder, its safety features, and how to use the ladder. There have been many reported deaths and serious injuries from improper ladder use such as falls, electrocutions, and slips. This interactive online course will give you the information needed to be aware of the hazards related to ladders and best practices for using ladders. | 0.5 | Intermediate |
| Laser Safety | Lasers have become an integral part of society. Due to their ability to carry large amounts of data with little or no signal degradation over long distances, they are commonly used in fiber optic communication systems. Use this course to learn safe work practices around Light Amplification by Stimulated Emission of Radiation (LASERs). This course covers the theory of laser light, how lasers work, types of lasers, laser classifications, laser hazards, low-power laser hazards, and laser pointer safety guidelines. | 0.25 | Intermediate |
| Lead Awareness | Before you cut, grind, or burn through any painted surface at work or at home, better make sure you know what you're dealing with. Protect yourself and your team from unintentional lead exposure with this course that defines what lead is and provides information on its history and usage, reduction efforts, lead exposure, effects, detection and treatment, personal protective equipment (PPE), and prevention methods. | 0.25 | Intermediate |
| Lead Contamination of Public Water Systems | Lead contamination of drinking water is a major topic of concern across the country, particularly in areas with aging lead pipes. Lead contamination in Flint, Michigan; Washington, DC; and Newark, New Jersey, has focused attention on America's decaying pipes. At least $384 billion of improvements are needed to maintain and replace essential parts of the country's water infrastructure to through 2030, according to the US Environmental Protection Agency. While these improvements are underway, treatment technologies can be utilized to significantly limit the migration of lead into the potable water supply. This interactive online course will describe these technologies and opportunities for implementation. | 1 | Fundamental |
| Lead Safety in Construction: Keeping You Safe and Compliant | Lead exposure is a major health issue. Exposure to lead can cause brain damage, paralysis, kidney disease and even death however, there are many methods to protect workers from exposure. In this one-hour interactive course, we will discuss these and other acute and chronic symptoms. We'll discuss how lead is used in construction and identify the workers that are the most vulnerable to these risks. You'll be introduced to OSHA's Lead Standard on the responsibility of employers and how it's designed to protect workers. Finally, we'll go over the methods to reduce exposure to lead, including engineering controls as well as the proper protection for workers such as the use of personal protective equipment. | 1 | Fundamental |
| Lead with Strengths | It is common to focus on our weaknesses, however weakness will not make you excel. If you want to be an effective leader, it is important to focus on and learn to lead with your strengths. Everyone has strengths. Things they are naturally good at. Do you know your strengths and how they can help you to be an effective leader? This guide will teach you how to identify and lead with your strengths. | 0.5 | Intermediate |
| Lead-Based Paint Safety | This course covers basic guidelines and best practices for working safely around lead-based paint. Even though U.S. legislation passed in 1978 has dramatically limited the allowable lead levels in paint, lead-based paint is still present in many residential and commercial buildings. Based on OSHA standards set forth in 29-CFR 1910.1025 related to lead exposure in the workplace, this course is designed to help workers recognize and avoid the hazards associated with lead-based paint. | 0.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Leading Engaging Zoom Meetings | Maximize your meetings in Zoom. Meeting virtually doesn't have to be boring talking heads on a screen! If you know how to use the tools Zoom provides, you can lead engaging meetings where everyone can participate. Learn the settings you'll need to begin and the basics for sharing your screen, using whiteboards, annotation, and polls. Then, move into more complex meeting structures like breakout rooms for small group collaboration and how to manage them. End it with guidelines to heighten interest, participation, and engagement. | 1 | Intermediate |
| Lean Manufacturing: Continuous Improvement and the PDCA Cycle | Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes. | 0.5 | Intermediate |
| Lean Manufacturing: Determining the Voice of the Customer | The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a businesses success and describes how to anticipate and meet customer needs and requirements once this data is captured. | 0.5 | Intermediate |
| Lean Manufacturing: Kaizen | Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet todays challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day. | 0.5 | Intermediate |
| Lean Manufacturing: Kanban | Did you know the word "Kanban" is of Japanese origin and translates to "billboard" or "signboard"? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it. | 0.25 | Intermediate |
| Lean Manufacturing: Poka-Yoke | This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction. | 0.25 | Intermediate |
| Lean Manufacturing: Pull Systems | This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While well introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes. | 0.5 | Intermediate |
| Lean Manufacturing: Standardized Work | This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting. | 0.5 | Intermediate |
| Lean Manufacturing: Value and Waste | Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value. | 0.5 | Intermediate |
| Lean Manufacturing: Value Stream Mapping | Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool. | 0.5 | Intermediate |
| Lean Manufacturing: Visual Management | Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information. | 0.25 | Intermediate |
| LEED v4 - Certified Buildings Under the O&M and BD+C Categories | This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings. | 1 | Fundamental |
| LEED v4 - Operations and Maintenance | "Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings.<br>The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings.<br>The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings." | 2 | Fundamental |
| LEED v4 and Data Center Construction | Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment. | 2 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| LEED v4 and the Future of Green | The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criterions and its impact on the future of sustainable new construction. | 1 | Intermediate |
| LEED v4 for Commercial Office Buildings | This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest "bang for your buck". Real life relational stories are included to help reinforce some of the concepts and actions. | 1 | Fundamental |
| LEED v4 for Existing Buildings: Operation & Maintenance (EBOM) | This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance. | 2 | Fundamental |
| LEED v4 for Healthcare Facilities | This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest "bang for the buck". Real life relational stories are included to help reinforce some of the concepts and actions. | 1 | Fundamental |
| LEED v4 for Hospitality Projects | This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest "bang for the buck". Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System. | 1 | Intermediate |
| LEED v4 for Interior Design + Construction | Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only "green" with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources. | 1 | Fundamental |
| LEED v4 for New Construction Projects | This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4. | 2 | Fundamental |
| LEED v4 for Retail Projects | This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest "bang for the buck". Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System. | 1 | Intermediate |
| LEED v4 for School Buildings | In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest "bang for the buck". We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform. | 1 | Fundamental |
| LEED v4: Building Design and Construction | Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories | 1 | Fundamental |
| Legionella Prevention and Control | In 1977, the Centers for Disease Control and Prevention (CDC) identified a condition known as Legionella pneumophila, which is a waterborne disease responsible for 34 deaths at an American Legion convention in Philadelphia. This interactive online course presents the causes and risk factors for Legionella contamination and some of the problems associated with Legionella in water systems in commercial buildings. Other topics include the ANSI/ASHRAE 188-2015 Standard and testing methodology and frequency. | 0.5 | Intermediate |
| Lighting Controls Essentials | "Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions. This interactive online course covers the ""big picture"" of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels." | 2 | Intermediate |
| Line Breaking Safety | "Line breaking is the intentional opening of a pipe, line, or duct that contains or has contained material capable of causing injury. OSHA requires that all members of a line breaking team understand the hazards related to the material and equipment involved. This course illustrates common hazards of line breaking and provides suggested preventative measures for this type of work. Based on general industry best practices and OSHA regulations, this course covers basic safe work procedures recommended by industry professionals when planning or working on a line break." | 0.5 | Intermediate |
| Line-of-Fire Safety | Line of fire is a term used to describe being in harm's way. A person in the path of an object or hazardous energy is in the line of fire. Over one-quarter of all workplace fatalities are the result of line-of-fire incidents. This module discusses how to identify common line-of-fire hazards and how to protect yourself and others from those hazards. | 0.25 | Intermediate |
| Load Securement | The North American Cargo Securement Standard provides the basis for the rules and regulations covering load securement on motor vehicles in the United States and Canada. This standard was created because unsecured loads can cause loss of life and load, cargo and vehicle damage, and accidents with other vehicles. This course covers the purpose of load securement, preparing loads, methods of load securement (including tie-down assemblies), working load limits, tie-down types, and safety. | 0.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lockout Tagout for Affected Employees | Lockout/tagout can be defined as the placement of a lock or tag on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be re-energized until the locking device is removed. While an authorized person usually performs the lockout, an "affected employee" is an employee that is affected by the lockout. This course will focus on the general awareness needed for these "affected employees." | 0.3 | Intermediate |
| Lockout Tagout for Authorized Employees | Don't count on luck, count on the lock. Protect yourself and your team from unintentional exposure to all types of hidden energy with this course that describes hazardous energy types and energy control procedures, including preparation, shutdown, isolation, lockout, stored energy check, verification, and release of lockout. Additional topics include lockout hardware and administration of an Energy Control Program (ECP). This course is intended for the "authorized employees" who typically perform lockout/tagout procedures. | 0.47 | Intermediate |
| Lockout/Tagout & Basic Arc Flash | Electricity is an essential element of the workplace. It provides light, heat, motive power, and communications, but it is also dangerous. The need to continually maintain, repair, and upgrade electrical equipment means that employees will sometimes be in close vicinity to electricity and therefore exposed to some risk. This interactive online course explains the dangers of an arc flash and how to protect against an arc flash, as well as the basic principles of a lockout tagout program. | 0.5 | Fundamental |
| Low/No Cost Energy Savings Opportunities | In managing the energy consumption of a building, there are two goals. One is to provide and maintain the comfort of the occupants, and one is to minimize the amount of energy, and therefore money, consumed in the process. This interactive online course will cover some low-cost methods that can be used to minimize building energy consumption. | 0.5 | Fundamental |
| Machine Guarding | This course covers the importance of having industrial machine hazards properly guarded and protected against. This course is aligned with OSHA General Industry standards and industry best practices. It is meant to be used as an introductory or refresher course for general industry workers who will be operating or working near industrial machinery. | 0.62 | Intermediate |
| Maintenance of Air and Oil Circuit Breakers | Circuit breakers are devices that open or close a set of electrical contacts to interrupt or complete an electrical circuit. A switchgear is a self-contained, enclosed assembly of circuit breakers and related components. Both circuit breakers and switchgear serve to protect plant circuits from various electrical problems. They can switch power on and off, and they can isolate circuits on which work is being performed. Electrical maintenance personnel are responsible for keeping circuit breakers and switchgear working properly and for performing periodic inspections and any necessary repairs. This course covers the operation and maintenance of high-voltage circuit breakers and switchgear (4 KV and above) that are typically used for in-plant distribution of electrical power. Many high-voltage circuit breakers used for transmission purposes consist of three single-phase breakers connected to a common operating mechanism. However, the distribution breakers discussed in this course are three-phase breakers. | 1 | Intermediate |
| Maintenance of High-Voltage Circuit Breakers | After completing this course, you should be able to describe the basic operation of an oil circuit breaker, an air-magnetic circuit breaker, a vacuum circuit breaker, and an SF6 gas puffer circuit breaker. You should also be able to explain how each type of circuit breaker extinguishes an arc, and you should be able to describe basic procedures for racking out high-voltage circuit breakers and performing routine maintenance and testing on them. | 1 | Intermediate |
| Maintenance of Low-Voltage Circuit Breakers | Circuit breakers and switchgear are among the most common, yet critical, components of an industrial electrical system. Circuit breakers are devices that interrupt or complete electrical circuits. They protect systems and equipment from the effects of excessive current, and they provide a way to switch power on and off and isolate circuits or equipment on which work is being performed. Switchgear is basically a self-contained, enclosed assembly of circuit breakers and auxiliary devices. Part of your responsibility involves keeping circuit breakers and switchgear working properly. So, it is important for you to have a good understanding of how circuit breakers work and the types of maintenance procedures that are typically performed on them. | 1 | Intermediate |
| Maintenance Safety | Industrial facilities rely heavily on complex equipment. To run efficiently and effectively, the equipment needs regular maintenance. However, performing maintenance can introduce many safety hazards. This course addresses best practices for safely maintaining and repairing equipment. | 0.67 | Intermediate |
| Management 101: 01-Introduction to Management | You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resistors to change. Overall, you will be better equipped as a new manager. | 1 | Intermediate |
| Management 101: 02-Leading and Communicating as a Manager | Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting. | 1 | Intermediate |
| Management 101: 03-Making an Impact as a Manager | Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact. | 1 | Intermediate |
| Management 101: 04-Taking Control as a Manager | Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department. | 1 | Intermediate |
| Managing a Millennial | "Millennials are the generation born between 1980 and 1994 who have been given a reputation that says they have an inborn distrust of hierarchy and bureaucracy, and are prone to job-hopping. But is this reputation actually true? To manage your Millennial employees, you must understand the group and how they compare to other generations before them. How to manage and motivate what some call the "trophy generation" is a hot topic of conversation and a concern for many businesses and managers. The good news is that millennials are like most people, they aim to have a job where they are valued, make an impact and develop their skills, all while being interested in what they do and being fairly paid for their effort. They want a secure job, but they aren't looking to make one job their life's work. This interactive, online course will discuss how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun. " | 0.5 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Managing a Work Group | Managing a Work Group is a course designed to familiarize participants with techniques for building and maintaining a high performance work group. After completing this course, participants should be able to describe how to work with group members to set performance goals, provide reinforcement for good performance, and build employee involvement in group activities. They should also be able to describe considerations associated with effective training, ways to diagnose performance problems, and techniques for practicing assertiveness.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Managing Complaints: 01-The Difficulties of Managing Complaints | Discover the difficulties of managing team member complaints and how to overcome these issues. | 1 | Intermediate |
| Managing Complaints: 02-Handling Complaints Using Active Listening | Use active listening skills to effectively handle team member complaints. | 1 | Intermediate |
| Managing Complaints: 03-Your Path to Managing Complaints | Learn and apply the five-step process for effectively handling complaints from your team members. | 1 | Intermediate |
| Managing Complaints: 04-Mastering Managing Complaints | Practice Managing Complaints in a full scenario situation. | 1 | Intermediate |
| Managing Complaints: 05-Managing Complaints Health Check | Test your ability to apply Managing Complaints concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Managing Contractors and Temporary Employees | In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department. | 3.25 | Intermediate |
| Managing Generation X | You have probably heard the term "Generation X" used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers. | 1 | Intermediate |
| Managing Stress at Work | Eu-stress and Di-stress. One positive, one negative. One can push us to new levels of achievement, the other can kill. In this course, learn the difference between positive and negative stress, and how to manage both to help you achieve the results you desire. Reduce the negative stress in your world by using application exercises and a rich multimedia process. Check process to identify pain points and take action to regulate the stress you experience. | 0.5 | Intermediate |
| Managing Technical Professionals | In LearnSmart's Managing Technical Professionals video training, managers are given a thorough overview of how to effectively lead technical professionals. You will cover material on the high-tech business environment to how to establish and maintain credibility. You will find discussions on how to keep technical professionals motivated. And how, when inspired, these dedicated individuals will help support a companies strategic objectives. But to do this, they need assistance from managers in identifying their career goals. Overall, you'll learn how to assist your organization and the technical professionals you manage in reaching and exceeding their goals. | 2.75 | Intermediate |
| Managing Up: Strengthening Business Relationships | Have a great rapport with your employees and your peers? You're not done yet! Learning how to manage up is a key component of any successful career. Through application exercises and a rich multimedia process, this course will teach you what you need to know to create positive relationships with those you report to. | 0.5 | Intermediate |
| Managing Yourself | Managing Yourself is a course designed to familiarize participants with techniques for making a smooth transition from worker to supervisor and with some tools that can make a supervisor's job easier. After completing this course, participants should be able to describe techniques for starting off on the right foot as a new supervisor. They should also be able to describe how to use tools such as delegation and time management.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Mastering Access 2016, Basics | "Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules<br>Microsoft Access lets ordinary users develop powerful apps customized for their business needs.<br>In this course experienced Microsoft Access trainer Kathy Jones will walk you through building your first Microsoft Access database, including creating tables, using queries, and implementing forms and reports." | 3 | Fundamental |
| Mastering Access 2016, Intermediate | "Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules<br>Microsoft Access lets ordinary users develop powerful apps customized for their business needs.<br>In this course experienced Microsoft Access trainer Kathy Jones will build upon the basics of tables, queries, forms, and reports covered in the Basics course. Starting with the basics of relational database design, this course will expand your knowledge of Microsoft Access by covering topics such as table relationships, query joins, subdatasheets, field validation, parameter queries, and more." | 2.75 | Fundamental |
| Mastering Excel 2016 | "The World Is Filled With Two Kinds Of People: A Handful Of People Who Are Masters Of Excel, And The Millions Of Others Who Wish They Were. If you've mastered Microsoft Excel 2016 then you have one of the most practical and valuable skill sets in all of modern business. A spreadsheet guru can work wonders - from organizing lists, to creating multi-layered, interactive reports, to revealing answers to business-critical questions like ROI, budget allocations, tracking expenditures, and more. This course covers everything you need to know about Microsoft Excel 2016, from the very basics to the most advanced features and functions.<br>Note: This course covers all the objectives required in the Microsoft Office Specialist exam 77-727. This course includes all of the modules from the Basics and Intermediate courses, as well as 26 additional, more advanced, training modules." | 11.5 | Advanced |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering Excel 2019 - Advanced | "There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to use links, Lookup functions, Data Validation, Macros, data tables, and more." | 4.3 | Fundamental |
| Mastering Excel 2019 - Basics | "There are two kinds of people: Those who are masters at Excel, and those who wish they were When you master Excel, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wondersfrom organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course is your first step towards becoming an expert at using Excel 2019." | 4.5 | Fundamental |
| Mastering Excel 2019 - Intermediate | "There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to manage data, charts, and tables, and how to use powerful tools such as Pivot Tables, Pivot Charts, Slicers, Timelines, and more. This is our most requested training course! If you learn to use Excel 2019 or Excel 365, you will start to see how useful it is in your life—from formatting your grocery list to calculating complex ROI values. If you are comfortable with the basics of Excel, let our Microsoft Certified Trainer, Kathy Jones, walk you through more advanced topics that will take your spreadsheets to the next level and help you to be more efficient in analyzing your data. Topics covered include: Working with named ranges Inserting functions Using advanced sorting and filtering techniques Inserting Tables, Applying advanced Conditional Formatting Inserting charts and graphics Applying advanced charting tools Working with Pivot Tables, Pivot Charts, Slicers, and Timelines" | 5 | Intermediate |
| Mastering Google Drive (2020) | "Learn to collaborate, store, share, and access your files any time from any device. It's time to leave attachments behind. Google Drive is an accessible, secure, and free tool for collaborating, sharing, editing, and storing your files in the cloud. If you have a Google account, you already have a Google Drive! In this course, Google expert Laurie Sherrod shows you how to make the most of your Google Drive including all the tips and tricks that will make it easy and fast to get started. It's already integrated with other Google Apps like Gmail, Google Docs, and Google Sheets. By the end of this course, you will understand the purpose and features of Google Drive and be ready to use the application to store, edit, and share files and folders any time and from any device." | 1.25 | Fundamental |
| Mastering Microsoft Project 2016 – Part 1 | "In this course PMP and Certified Technical Trainer Christina Tankersley will familiarize you with the basic features and functions of Microsoft Project Professional 2016 so you can use it effectively and efficiently in your real-world environment. This course covers the critical knowledge and skills a project manager needs to create a project plan with Project 2016 during the planning phase of a project. In other words, if your manager assigns you to lead a project, this course will enable you to draft a project plan with Project 2016 and share it with your supervisor (and others) for review and approval." | 2.25 | Intermediate |
| Mastering Microsoft Project 2016 – Part 2 | "In this course, PMP and Certified Technical Trainer Christina Tankersley will demonstrate how to use the features and functions of Microsoft Project Professional 2016 to effectively manage your project plans. This course covers the skills a project manager needs in order to manage a project plan created with Microsoft Project 2016. From updated task progress, work, and costs to creating reports, and including advanced topics such as sharing resources and linking project plans, this course covers everything you need to know in order to manage your projects using Microsoft Project." | 2.25 | Intermediate |
| Mastering Microsoft Teams (2019) | "Conversations, Channels, and Chatbots: Learn How To Get The Most from Microsofts New Communications Hub - Teams The ability for teams to work together productively is perhaps the most important function in any business, and its the central focus of the new Microsoft Teams application. From file sharing and co-editing to video calls, persistent chat, screen sharing, and more, learn how Microsoft Teams gives you the tools to stay in touch and get work done with your colleagues and partners. Updated for 2019, this course includes new and updated material, including Shifts, Whiteboard, Praise, and Calls. We also discuss best practices for getting the most from your Microsoft Teams" | 5 | Fundamental |
| Mastering Office 365 (2018) | "Learn To Organize And Maintain Your Virtual Office Using Microsoft 365: The Powerful, Everything-You-Need-In-One-Easy-Bundle. Online Suite Office 365 is far more than classic Microsoft Office. Easy, collaborative tools like OneDrive, Teams, Planner, and Forms combine with traditional Microsoft apps to form a powerful productivity-boosting tool - and in this course we'll show you how to tap into all the power Office 365 has to offer! Updated for 2018 with all-new modules covering Microsoft Teams, Forms, To-Do, Stream, and Delve, with updates for Outlook online, navigation, Planner, and more - over 20 new and updated video lessons!" | 11 | Intermediate |
| Mastering OneNote 2016 | "Organize Your Work & Life Into Pages, Sections, and Notebooks! OneNote is a powerful tool both for managing your own notes or idea, and for collaborating with others. In this course trainer Kathy Jones will walk you through everything you need to know to be efficient with Microsofts incredibly popular note-taking platform." | 2.5 | Intermediate |
| Mastering Outlook 2016 | "From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master." | 6.25 | Intermediate |
| Mastering Outlook 2016 Advanced | "From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master." | 3 | Advanced |
| Mastering Outlook 2016 Basics | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Is The First Step In Becoming An Outlook Master!" | 3.25 | Fundamental |
| Mastering Outlook 2019 - Advanced | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Teaches You to Make the Leap from Outlook User to Outlook Master!" | 2 | Advanced |
| Mastering Outlook 2019 - Basics | "From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be managed automatically or handled in a fraction of the timeif the Outlook user knew how to use the proper tools. This Course is the First Step to Becoming an Outlook Master!" | 2.25 | Fundamental |
| Mastering PowerPoint 2016 | "Making PowerPoint 2016 Easy & Effective Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged." | 8.25 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering PowerPoint 2016 Advanced | Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 3.5 | Advanced |
| Mastering PowerPoint 2016 Basics | Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 4.75 | Intermediate |
| Mastering PowerPoint 2019 - Advanced | "Learn advanced features to get the most out of PowerPoint 2019 or PowerPoint 365. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made—not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged." | 5 | Fundamental |
| Mastering PowerPoint 2019 - Basics | "Making PowerPoint 2019 Easy & Effective Using PowerPoint effectively is a crucial skill for any business professional. Whether it's designing a presentation for a meeting, creating a handout, or even creating and exporting a custom video, PowerPoint 2019 is a tool that everyone should feel comfortable using. In this Bigger Brains course, our PowerPoint guru Kelly Vandever walks you through the basics of getting started with PowerPoint 2019." | 4.75 | Fundamental |
| Mastering QuickBooks Desktop 2018 | Learn The Useful And Powerful Features And Tools In QuickBooks Pro, Premier, and Enterprise. Do you feel like you don't have time to learn how to use some advanced tools and functions in QuickBooks because you have other important work to do - like gathering or inputting data into QuickBooks? This course is a great way to get up to speed on QuickBooks 2018, with many time-saving lessons that can change the way you think about QuickBooks. | 3 | Intermediate |
| Mastering QuickBooks Online 2018 | Become A QuickBooks Online Guru. QuickBooks Online brings traditional QuickBooks accounting to a cloud-based solution, and this course will show you everything you need to know to manage your customers, vendors, invoices, bills, checks, and online payments through QuickBooks Online. | 4.25 | Intermediate |
| Mastering Word 2016 | "Learn Everything You Need to Know About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word, from the very basics to the most advanced features." | 9.75 | Advanced |
| Mastering Word 2016 Advanced | "Learn More About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word." | 2.5 | Advanced |
| Mastering Word 2016, Basics | Learn The Basics Of Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley, we'll show you everything you need to know to start harnessing the power of Microsoft Word. | 3.6 | Fundamental |
| Mastering Word 2016, Intermediate | Learn More About Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley we'll show you everything you need to know to start harnessing the power of Microsoft Word. | 2.5 | Intermediate |
| Mastering Word 2019 - Advanced | "Learn the powerful advanced skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on intermediate skills in Word 2019 or Word 365 to create more professional and effective documents." | 2.5 | Fundamental |
| Mastering Word 2019 - Basics | "Learn the Basics of Microsoft Word 2019Delivered in Easily Searchable, Highly Informative Content Lessons Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer, Barbara, Evers, well show you everything you need to know to start harnessing the power of Microsoft Word." | 3.5 | Fundamental |
| Mastering Word 2019 - Intermediate | "Learn intermediate skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on basic skills in Word 2019 or Word 365 to create more professional and effective documents. Topics covered include: Working with tables and charts including performing calculations and linking to data in an Excel workbook Creating text styles, list styles, and table styles Applying document themes Inserting building blocks (Quick Parts) Using and creating templates Inserting section breaks, columns, and linked text boxes Creating an index Creating a table of contents Creating a table of figures Creating an outline Creating a master document Creating a mail merge" | 2.75 | Intermediate |
| Material Handling: Tank Trucks | This course is designed to familiarize participants with basic concepts of material handling using tank trucks. After completing this course, participants should be able to describe characteristics of liquids that can affect liquid handling operations, and they should be able to describe precautions, procedures, and equipment associated with handling hazardous liquids. They should also be able to describe features of a typical tank truck and typical procedures for loading and unloading a tank truck.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Math: Basics | This course is designed to familiarize participants with basic mathematical applications that can be used on the job. After completing this course, participants should be able to interpret measurements that include fractions and decimal values, measurements in English and metric units, and perform mathematical applications involving fractions and decimals. They should also be able to calculate dimensions associated with rectangles, triangles, and circles. | 2 | Intermediate |
| Mechanical Power Press Safety | "A mechanical power press (MPP) is a machine that uses dies and pressure to shear, punch, form, and assemble metal or other material. They can develop up to several thousand tons of pressure, and the area where they perform work - the ""point of operation"" - poses a serious pinch point hazard. They also contain rotating component and in-running nip point hazards. The primary and secondary safeguards that are used on MPPs depend on several things. All safeguards must be inspected and tested on a regular basis to make sure that they function correctly and meet all current safety standards." | 0.5 | Intermediate |
| Mechanical Seals | The purpose of this course is to provide participants with a general understanding of mechanical seals and mechanical seal installation. At the completion of this course, participants will be able to describe the components and operation of the different types of mechanical seals as well as procedures for seal removal and installation. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Meetings That Get Results | Frustrated with boring meetings that waste time? Never fear! This pivotal course will teach you how to shift from boring, ineffective meetings, to strategic meetings that get results! Through application exercises and a rich multimedia process, learn the specific components that make meetings worth the time and effort of everyone involved. But what if you are not in charge? Not a problem! This course will also take you through the steps and options to make meetings effective even when you are not the one conducting! | 0.5 | Intermediate |
| Metal on Metal Safety | When working on heavy construction equipment, there are often situations when you have the need to strike a metal component of a machine with a hammer. Most hammers have hardened steel heads, and there is a hidden danger in striking two hardened metal surfaces together. This action can lead to sharp pieces of metal breaking out of the hammer or the struck piece of metal at very high velocity. This course will describe why this happens and what can be done to minimize the danger and protect yourself from injury. | 0.25 | Intermediate |
| Metalworking Fluid Safety | Metalworking fluids, or MWFs, are used for cooling and lubrication during metal machining operations. When not properly handled, metalworking fluids can cause various health concerns. This course will provide you with the tools to protect yourself when working with metalworking fluids. | 0.6 | Intermediate |
| Microgrid Essentials | Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges. | 1 | Fundamental |
| Microgrids and the City | Is your municipality prepared for a loss of power for days, or even weeks? The use of backup generators is really a short-term solution that only addresses one aspect of loss of power - what about the rest? Wireless communications? Clean water? Gasoline/ diesel? Medicines? A holistic approach to energy from up front and ongoing efficiency, minimizing demand, and designing, building, and operating long-term outage solutions is within the grasp of all municipalities. This presentation will examine energy resiliency resources and provide two case-study examples of the application of those resources. | 1 | Intermediate |
| Microsoft 365 Admin Tips and Tricks | "Learn the secrets to keep your Microsoft 365 tenant safe and secure. As an administrator, you know the importance of streamlining user, device, and configuration management, while ensuring a safe and secure experience for both your users and your company. In this course, Amy Babinchak, Microsoft 365 MVP, shows you how she administers and secures Microsoft 365 tenants for her company and her clients. Learn how to access the various Microsoft 365 admin centers and where to perform necessary tasks, while also getting tips and tricks from Amy based on her years of experience. By the end of this course, you'll be ready to get started with, or improve, your Microsoft 365 administration." | 2 | Fundamental |
| Microsoft Forms Essentials | "Learn How Microsoft Forms Makes It Easy to Collect Datavia Forms or Quizzes Easily create online forms, surveys, and quizzes, and view the results as they come in with Microsoft Forms! In this course well take a close look at all the features and benefits of this new Office 365 tool!" | 1.33 | Fundamental |
| Microsoft Lync Essentials | "Can You Hear Me Now? The Essential Guide To Communication & Collaboration With Microsoft Lync Collaboration is the art of making 1 + 1 equal more than 2 - coworkers sharing ideas, working through challenges, and congratulating each other on successes is an important part of any successful business. How do you do that with today's distributed workforce? Microsoft Lync to the rescue! This Course Will Teach You Everything You Need To Know To Chat, Call, Present, and Share With Microsoft Lync." | 1.25 | Fundamental |
| Microsoft Project 2013 Essentials Training | Microsoft Project 2013 is a desktop application used primarily by Project Managers to create and manage large or complex programs or projects. The objective of Microsoft Project is to manage your project easier. In this Essentials training course, you will be introduced to the user interface. You will learn how to create, execute, and close projects. This course will show you how to plan and create tasks as well as how to create resources and assign them to those tasks. This interactive online course wraps up with tips and tricks you can use to make Microsoft Project more efficient for you. | 2 | Intermediate |
| Microsoft Project 2013 Intermediate Training | | 2 | Intermediate |
| Microsoft Sway Essentials | Learn The Easy Way To Create Compelling, Modern Presentations With Microsoft Sway, For everyone who ever struggled to create an engaging presentation with PowerPoint, rejoice! Microsoft Sway is a unique and refreshing new way to create visually appealing, interactive presentations, and this course will walk you through getting started with your first Sway. | 1.25 | Fundamental |
| Microsoft Teams Essentials | "Learn To Collaborate and Communicate with Microsoft Teams<br>Many businesses are using Microsoft Teams to facilitate communication, collaboration, file sharing, and more. This mini-course covers everything you need to know in order to start using Microsoft Teams in just the first two modules (20 minutes)." | 1 | Fundamental |
| Microsoft To Do Essentials | "Organize Your Day Track Your To-Dos and Focus on Whats Important<br>The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks." | 0.5 | Fundamental |
| Mobile Elevating Work Platform (MEWP) Safety | Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for MEWP operators and occupants. It covers MEWP Group and Type designations, as well as MEWP design, use, and training requirements. | 0.75 | Intermediate |
| Mobile Elevating Work Platform (MEWP) Safety for Supervisors | Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for supervisors of MEWP operators. It covers the latest MEWP Group and Type designations, and updated design, use, and training requirements. | 1 | Intermediate |
| Modern React with Redux | This is the tutorial you've been looking for to master modern web development with React. Redux? We got it. ES6/Babel? Covered. Webpack? Included! Mastering React and Redux can get you a position in web development or help you build that personal project you've been dreaming of. It's a skill that will put you more in demand in the modern web development industry, especially with the release of Redux and ReactNative. This course will get you up and running quickly, and teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux. We'll start by mastering the fundamentals of React, including JSX, props', state', and eventing. Source code is provided for each lecture, so you will always stay up-to-date with the course pacing. After an introduction to React, we'll dive right into Redux, covering topics like reducers, actions, and the state tree. If you are new to React and Redux, or if you've been working to learn it but sometimes feel like you still don't quite 'get it', this is the React course for you! To learn React you have to understand it. Learn how to use React's custom markup language, JSX, to clean up your Javascript code. Master the process of breaking down a complex component into many smaller, interchangeable components. Grasp the difference between props' and state' and when to use each. Develop complex applications that scale in complexity by mastering Redux. Dive deeper into Redux by using middlewares. No fancy terms required! I've built the course that I would have wanted to take when I was learning React and Redux. A course that explains the concepts and how they're implemented in the best order for you to learn and deeply understand them. | 10.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mold Awareness and Prevention | Mold is everywhere! Thousands of species of this type of fungus can be found growing year round, both indoors and outdoors, even in the most sterile of environments. Mold has a number of benefits, however it can also become a problem. Mold can destroy construction materials and also negatively impact peoples health. Knowing how to recognize mold, as well as how to clean it up and prevent it from recurring, is essential to a safe and healthy environment at work and at home. | 0.25 | Intermediate |
| Mold Basics | " Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure." | 1 | Fundamental |
| Mold Remediation | Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. | 1 | Fundamental |
| Mold Remediation Equipment | The key to efficiently and effectively completing remediation projects is knowing what equipment to use for the task, how to use it, and take care of it. This course will allow you to quickly learn from our practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list. | 1 | Fundamental |
| Mold Safety and Health | Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects. | 1 | Fundamental |
| Mold Sampling | This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. | 1 | Fundamental |
| Montana 4 Hour 2017 NEC Changes: Program 1 | This 4-hour program is formatted in 3 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) 2017 NEC Changes: General Requirements (RV-11105) 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Lesson 1: The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: The second lesson covers Chapter 1 of the 2017 National Electrical Code (NEC)and contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Lesson 3: In the last lesson chapter 2 is discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercia | 4 | Intermediate |
| Montana 4 Hour 2017 NEC Changes: Program 2 | This 4-hour program is presented in 4 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) 2017 NEC Changes: Enclosures and Boxes (RV-11108) 2017 NEC Changes: Hazardous Locations (RV-11112) 2017 NEC Changes: Special Occupancies (RV-11113) Lesson 1: The first lesson covers Article 240 and 250 of the National Electrical Code (NEC) and the requirements for overcurrent protection and for grounding and bonding. Changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: Chapter 3 of the NEC contains requirements for wiring methods, enclosures and boxes. Notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Lesson 3: Chapter 5 of the 2017 National Electrical Code (NEC) also contains requirements for special occupancies. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements <p style="margin-bottom: 0.0001pt | 4 | Intermediate |
| Montana Electrician 4 Hour Industry Related Program 1 | "This 4-hour program is presented in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Wecome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll" | 4 | Intermediate |
| More Than Mold - Health Effects Associated With Mold and Water Damage | "Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health." | 3 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Motivating Employees | How do you get your employees and team members motivated and actively engaged? According to the dictionary, you simply provide them with a need, desire, or reason to make a particular choice - or behave in a specific manner. Sounds simple, right? Unfortunately, motivating employees is much more than just offering the right prizes, bonuses, or incentives. To understand motivation, we'll first focus on making sure the foundational needs of your employees are being met, and then, look at what additional needs need to be taken care of to help them thrive. Finally, you'll learn how to assess the motivation level of your employees to better determine what types of programs, incentives, or changes should be put in place to effectively increase motivation within your organization. | 0.5 | Intermediate |
| Motivational Ethics | "**This course does not provide CEU or PDH credit** A lot of "good" people find themselves getting fired, or even getting arrested, and have to ask, "How did I end up here?" You likely didn't wake up today and make a conscious decision to NOT steal a car or rob a bank. However, you already have made thousands of choices, and those choices will have an inevitable impact on your life, and the lives of others. This course shows how to recognize and understand HOW to be trustworthy, reliable, and honest in your professional and personal life.<br>What determines your future has everything to do with the choices you make. Understanding ethics can do more than help you decipher what is right or wrong. If you understand and apply the laws of ethics, then you can consciously make decisions that will inevitably lead you to become very successful." | 1.75 | Fundamental |
| Motor Basics | Do you know the difference between a stator and a rotor? An electric motor is a rotating machine that converts electrical energy into mechanical energy. Electric motors operate by the interaction between the motor's magnetic field and an electric current in a wire winding to generate a force that results in shaft rotation. This course will address the two general types of electric motors by describing how they are constructed and the principles of operation of each type. | 0.5 | Fundamental |
| Motor Branch Circuit Protection | A motor branch circuit, or motor branch, is a circuit that provides power and protection for a motor. According to the National Electrical Code® (NEC®), a motor branch must have a means to disconnect the entire branch from its power supply and a means to protect the branch components from the potentially damaging effects of excessive current. How a motor branch functions and how the necessary protection is provided are the subjects of this course. | 1 | Intermediate |
| Mounting and Dismounting Heavy Equipment | Accessing the operator's cab on heavy equipment requires more physical activity than sitting down into a car or small truck. "Mounting" and "dismounting" often requires the use of access supports such as ladders, steps, and handholds. This course will cover some specific safety guidelines to prevent injuries during the mounting and dismounting of heavy equipment. | 0.25 | Intermediate |
| MRO Stockroom Management | What would happen if you are out of stock of a very important part? MRO, or maintenance, repair, and operations requires identifying which parts need to be on hand based on frequency of failures and balancing the cost of inventory. This interactive online course will discuss how to maintain hardware MRO stock, how to manage consumables, and the benefits and costs associated with MRO management. | 0.5 | Fundamental |
| Multigeneration Management: 01-Workforce Generations | At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace. | 1 | Intermediate |
| Multigeneration Management: 02-Leading Silents and Boomers | For todays managers, it is essential to understand the unique needs and work habits of the companies elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to Americas workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generation series, which contains courses dedicated to understanding each generations different behaviors, attitudes, and priorities. | 1.5 | Intermediate |
| Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next) | Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrows experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series. | 1.25 | Intermediate |
| Multigeneration Management: 04-Cross-Generational Teams | Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the fourth course. | 1 | Intermediate |
| Multigeneration Management: 05-Developing Generations | When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the final course. | 1 | Intermediate |
| Multistage Centrifugal Pump Maintenance | Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A singlestage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered. | 1 | Intermediate |
| Multistage Centrifugal Pumps | A centrifugal pump converts external rotational mechanical energy into kinetic energy within a liquid. In the most common design of the centrifugal pump, a single impeller spins within a case called a volute. There is an economical limit to the pressure increase that can be achieved with a single impeller. Placing multiple impeller-and-volute stages in a case creates a single centrifugal pump unit capable of continuously delivering much higher discharge pressures than can be created by a single stage pump. This type of pump is called a multistage centrifugal pump. This course discusses some of the mechanical considerations and different designs of multistage centrifugal pumps. | 0.25 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Natural Gas Systems - Sizing and Design Consideration | "What is that yellow pipe for? Do you know how to size a natural gas system? Natural gas piping systems are in use in virtually every commercial building. Natural gas is used for comfort heating, cooking, laundry, water heaters, fireplaces, even decorative lighting and fire pits. The proper design and installation of natural gas systems is essential for not only the efficient operation of appliances but also the safety and health of building occupants. This interactive online course will take an in-depth look at a number of considerations that must be addressed before design can begin including: Knowing the applicable codes,Knowing the requirements of the natural gas utility supplier,Venting requirements,Pipe identification and labeling requirements,Pipe support requirements,Gas meter clearances for windows, air intakes and electrical equipment, Sizing methods to use, andSelection of piping material." | 1 | Intermediate |
| Negativity in the Workplace | In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome. | 4 | Intermediate |
| New Employee Safety Orientation | All occupations, even ones that are not typically assigned to dangerous tasks, have certain safety hazards associated with them. For some occupations, the hazards are obvious. For other occupations, however, the hazards may be less apparent. It would be difficult to fully discuss all safety rules and regulations to avoid every danger you could potentially encounter in your job. So, instead, this online interactive course provides a basic overview of safety issues to help improve your safety awareness. These safety issues include safe work habits, which should be part of your daily routine; personal protective equipment, which may be required to maintain your health and safety on the job; hazard communication, which provides vital information about chemicals and other hazards that affect working conditions; and fire safety, which is a critical concern in any workplace. | 0.5 | Intermediate |
| NFPA 70E Introduction | NFPA 70E is the Standard for Electrical Safety in the Workplace. It establishes safe practices for protecting workers from two major electrical dangers, electric shock and arc flash. This course provides an introduction to NFPA 70E and summarizes some of its important electrical safety guidelines, including information on safety program components, risk assessment, risk control hierarchy, safety boundaries and some requirements for electrical equipment and devices. It also introduces PPE categories and incident energy analysis methods for determining personal protective equipment requirements. | 0.5 | Intermediate |
| NFPA 70E® - 2018 Updates | Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance. | 1 | Intermediate |
| Night Shift Safety | Night shift work can expose workers to a range of hazards, including sleep deprivation, limited visibility, and changing weather conditions. This course discusses what constitutes extended or unusual works shifts and the hazards associated with work pattern changes. The dangers of sleep deprivation, as well as nighttime weather hazards, are also explained along with nighttime work area lighting needs, operating mobile equipment at night, and the best practices for working outside at night. | 0.3 | Intermediate |
| Nitrogen Safety Awareness | Nitrogen is used daily in the workplace without incident. However, serious incidents including fatalities can occur when nitrogen is present in a work environment, such as a confined space, and employees enter without awareness of the potential hazard. This course will teach you how to recognize hazards and take corrective action to protect yourself and others. | 1 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements | This 2 hour program is presented in two lessons:Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 2 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies | This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. | 2 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: Overcurrent Protection, Grounding & Bonding, and Enclosure Boxes | This interactive online course is presented in two lessons:Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings | 2 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| North Carolina Electrician 2020 NEC Changes: 2 Hour Program #1 | This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units. | 2 | Intermediate |
| North Carolina Electrician 2020 NEC Changes: 2 Hour Program #2 | This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 2 | Intermediate |
| North Carolina Electrician 2020 NEC Changes: 2 Hour Program #3 | This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 2 | Intermediate |
| NPDES Wastewater Discharge Permits | "Water is a critical resource that must be protected to supply safe drinking water and support various activities, such as farming, manufacturing, and tourism. The federal Clean Water Act (CWA) protects ""waters of the United States"" (WOTUS). This training provides general guidance on what waters are considered WOTUS. With certain exceptions, the CWA prohibits the discharge of pollutants from a point source into waters of the United States without a National Pollution Discharge Elimination System (NPDES) permit. The requirements of this permit are also covered in this training course." | 0.5 | Intermediate |
| Occupational Safety Training: Introduction to OSHA | Many of the health and safety programs and procedures in this Health and Safety Guide are derived from federal Occupational Safety and Health Administration (OSHA) regulations. This course provides you with some background information about OSHA and OSHA standards, inspections, citations, and penalties. At the end of this course, you will be able to distinguish between the role of OSHA and the role of the office of Environmental Health and Safety (EHS). Learn more about the role of OSHA in establishing a safe and secure work environment. | 0.5 | Intermediate |
| Office 365 Groups Essentials | "Learn How Office 365s Powerful New Groups Feature Help Your Team Talk, Plan, And Collaborate<br>Microsoft Office has no shortage of ways for groups to work together. From simple spreadsheet sharing to social media tools like Yammer and Delve and collaboration platforms like SharePoint, Microsoft has provided plenty of tools to help people work as a team." | 1 | Fundamental |
| Office 365 Planner Essentials | Learn How to use Office 365 Planner to Organize Your Team in a Powerfully Simple Visual Format. The Planner tool in Office 365 is a powerful team management tool, providing features comparable to standalone project management apps but without the high price tag - in fact it's included free with most Office 365 Business plans. | 0.75 | Fundamental |
| Office Safety | "While we most often associate workplace injuries with construction, mining, manufacturing, and other manual labor jobs, injuries can occur even if you spend most of your workday sitting at a desk. Therefore, recognizing common hazards in an office environment and knowing how to reduce risks is vital to creating a safer workplace.<br><br>This course discusses the common hazards in an office environment and how to reduce risks in order to help create a safer workplace." | 0.25 | Intermediate |
| Ohm's Law | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that is commonly referred to as Ohm's Law. Ohm's Law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. This course describes Ohm's law; the units in which power is measured; and how to solve for power, voltage, current, and resistance using Ohm's Law. | 1 | Intermediate |
| Oil Spill Responses in Facilities | The environment and public health and safety are affected with every oil spill and facilities should work to mitigate their risk with a goal of zero oil discharge. By the end of this course, you will learn about the tools facilities can use to prevent, contain, control and if necessary cleanup after an oil spill. | 1 | Intermediate |
| OJT Mentor | On-the-job training programs can be very productive when properly structured. This course provides tips to help make people more effective OJT mentors, including explaining the structure of an OJT team, providing four questions to ask before training begins, stressing the importance of a training plan, giving tips for being a good mentor, explaining how to evaluate the OJT mentor and program, and more. | 0.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Oklahoma 6 Hour 2017 NEC Changes Program | "This program is intended to familiarize the reader with the major changes contained in the 2017 NEC, and is suitable for electricians, and electrical engineers. The course addresses Code revisions that are listed in the lessons below. NOTE: This course is formatted in 5 lessons with the exam given at the end of each lesson. Each lesson must be passed with a score of 70% or higher before being allowed to proceed to the next lesson. The lessons are listed below. Lesson 1: 2017 NEC Changes A New Process and Five New Articles (RV-11104) The 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. Lesson 3: 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Lesson 4: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Lesson 5: 2017 NEC Changes: Enclosure Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314." | 6 | Intermediate |
| OneDrive Essentials (2016) | "OneDrive and OneDrive for Business Can Radically Improve Your Productivity Well Show You How! Both OneDrive (the free, personal version) and OneDrive for Business (the corporate version included in most Office 365 plans) have the same mission: To let you easily access your documents and files from any device, anytime, and securely share them with others." | 1.5 | Fundamental |
| OneNote for Windows 10 Essentials | "The Structure You Need with the Flexibility You Want OneNote is one of Microsofts unsung heroes: a digital notebook that allows you to organize your notes, meeting minutes, project documents, and moreall in one place. Its almost like having an old-school, three-subject binderexcept with unlimited sections and your notebook wont weigh down your bag like it might have in school. Plus, no one will have to copy your notes, because you can share them digitally to collaborate with others. Are you ready to get organized? Note: While many of the features are the same in other versions, this course is specific to the Windows 10 version of Microsoft OneNote." | 1.25 | Fundamental |
| Online Marketing 101 | "This Course Is A Must-Take For Anyone Who Wants To Drive In More Profits With From Your Online Business Generators You've heard of businesses making it big online, and others not making it at all and the difference is whether or not they can master online marketing techniques." | 1.5 | Fundamental |
| Operator Responsibilities: Plant Production and Safety | The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with. | 0.5 | Intermediate |
| Order Picker Safety | An order picker is a forklift with an operator platform that raises with the forks. This allows operators to pick, or retrieve, individual items instead of entire pallets stored on high shelves. Order pickers are specially designed to operate in narrow aisles, where there is often only a few inches of clearance on either side. There are several obvious hazards associated with working at heights in narrow aisles, including falls, tip-overs, and falling objects. This course discusses how to safely operate order pickers. | 0.25 | Intermediate |
| Oregon 2017 NEC Changes: A New Process and 5 New Articles and General Requirements | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104)The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105)Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 2 | Intermediate |
| Oregon 2017 NEC Changes: Hazardous Locations and Special Occupancies | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112)Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113)The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. | 2 | Intermediate |
| Oregon 2017 NEC Changes:Overcurrent Protection, Grounding & Bonding, and Enclosure Boxes | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107)Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108)Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings | 2 | Intermediate |
| Oregon Electrician 2017 NEC Changes: Appliances and Equipment - Special Equipment | This two-part course discusses the 2017 NEC changes regarding appliances and equipment as well as special equipment. Part I 2017 NEC Changes: Appliances and Equipment Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II 2017 NEC Changes: Special Equipment Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. | 2 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Oregon Electrician 2017 NEC Changes: Conductors and Wiring Methods - Receptacles and Switches | This two-part course discusses the 2017 NEC changes regarding conductors and wiring methods as well as receptacles and switches.Part I 2017 NEC Changes: Conductors and Wiring Methods Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part II 2017 NEC Changes: Receptacles and Switches (RV-11110) How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. | 2 | Fundamental |
| OSHA 10 Hour Construction Program | "The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: Introduction to OSHA<br>Electrical Safety<br>Fall Protection<br>Struck-By & Caught-Between Accidents<br>Personal Protective Equipment (PPE)<br>Scaffolds<br>Cranes<br>Hand & Power Tools<br>Excavations<br>Materials Storage<br>Demolition<br>Hazards in Construction" | 10 | Fundamental |
| OSHA Electrical General Requirements | The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from electrical hazards. The Electrical General Requirements standard (29 CFR 1910.303) is one of OSHAs most frequently cited standards. Among these standards, this course covers requirements for listed and labeled equipment, proper use of flexible cords and cables, working space requirements, and effective electrical safety programs. | 0.5 | Intermediate |
| OSHA Electrical Wiring Methods | The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from hazards such as electric shock, electrocution, fires, and explosions. The Electrical Wiring Methods standard (29 CFR 1910.305) is one of OSHAs most frequently cited standards. This standard covers wiring methods, components, and equipment for general use. This course will address some of the frequently cited requirements and provide some examples to help clarify the standard. | 0.5 | Intermediate |
| OSHA Pressure Vessel Chemical Cracking | "A pressure vessel is a storage tank or vessel that has been designed to operate at pressures above 15 p.s.i.g. Recent inspections of pressure vessels have shown that there are a considerable number of cracked and damaged vessels in workplaces.<br>Cracked and damaged vessels can result in leakage or rupture failures. Potential health and safety hazards of leaking vessels include poisonings, suffocations, fires, and explosion hazards. Rupture failures can be much more catastrophic and can cause considerable damage to life and property. The safe design, installation, operation, and maintenance of pressure vessels in accordance with the appropriate codes and standards are essential to worker safety and health.<br>This 1-hour interactive online course is based on Section IV: Chapter 3 of the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) Technical Manual, Pressure Vessel Guidelines. This course focuses on pressure vessels and low pressure storage tanks used in process, pulp and paper, petroleum refining, and petrochemical industries for water treatment systems of boilers and steam generation.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| OSHA Safety: Drilling | The oil and gas industry employs hundreds of thousands of people and is a vital component of the national economy. Worker safety and health are important to this industry and it is essential to be aware of potential hazards present in the workplace. This 4-hour interactive online course discusses OSHA standards and directives that dictate OSHA safety procedures for oil and gas well drilling. This course also identifies common hazards and possible solutions to reduce incidents that could lead to injuries or fatalities. | 4 | Fundamental |
| OSHA Safety: Introduction to Powered Industrial Trucks | Approximately 100 fatalities and 36,340 serious injuries in general industry and construction occur annually due to powered industrial truck related accidents. With such staggering statistics, an employer is morally and legally obligated to take every safety precaution possible when dealing with powered industrial trucks. This 1-hour interactive online course focuses not only on the new OSHA standards for properly training employees to operate industrial trucks, but also the rules and regulations that must be followed to safely operate an array of work-oriented vehicles. | 1 | Fundamental |
| OSHA Underground Construction | "This interactive online course is a brief review of Government Regulations regarding Underground Construction, Caissons, Cofferdams and Compressed Air as posted under Subpart S, Part 1926, from OSHA's Safety and Health Regulations for Construction. The course is broken into sections: Underground Construction Part I Underground Construction Part II Caissons & Cofferdams Compressed Air After reading over the OSHA material, a brief multiple choice quiz follows each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 4 | Intermediate |
| Outlook 2013: 01-Getting Started in Outlook 2013 | Outlook is a program that enables you to track all your communication with contacts, meetings or appointments, notes, and to-do lists in one place. Microsoft has offered this resourceful program for years, but released this version update to provide users with a sleeker and more efficient tool. Explore whats new in Outlook 2013 as you go over the basics. You'll explore the interface, discover customization options for the layout of Outlook as well as customization options within your messages. Communication is key to success. Therefore, you'll spend a portion of your time learning to work efficiently within the Mail section of Outlook. Overall, the topics covered will aid you in your preparations for Microsofts Outlook Exam 77-423. | 1.5 | Intermediate |
| Outlook 2013: 02-Message and Contact Management in Outlook 2013 | Outlook is your go-to resource for all tasks and projects associated with communication. Part of communication is knowing the appropriate channel to reach a contact. As a result, you must understand how to use the People tab in Outlook for your benefit. Alongside the discussion on Contacts, you will also spend time on organizing your mail as you look over folder and configuration options. Prepare for your Microsoft Outlook Exam 77-423 by learning the tools Outlook provides for mail organization, the various save options, and contact categorization. Explore all of Outlook 2013s available features and tools for email and contact customizations. | 1.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Outlook 2013: 03-Time and Task Management in Outlook 2013 | Through these discussions, you are preparing for Microsofts Outlook Exam 77-423. To be successful in this exam, as well as in the professional world, it is crucial that you know how to properly manage your time. Overall, the topics covered will aid in learning how to use Outlook tools to help with time management. The tools emphasized are those associated with the calendar, notes, journal, and tasks tab. In the end, you'll be able to share calendars, work with the scheduling assistant, forward calendar items, share meeting notes, and update to-do lists. | 1.25 | Intermediate |
| Outlook Online Essentials (2018) | "Communicate Anywhere With Outlook Online, the Web-Based App For Managing Emails, Calendars, and People<br>Sometimes you need a quick way to get to your "stuff" no matter where you are. Outlook Online, also called the Outlook Web App (OWA), is a convenient and powerful way to access your email, calendar, and contacts (People) from any web browser.<br>Throughout this course, you will learn the main features and benefits of using Outlook Online from Office 365. The interface is very similar if you are using Outlook Online from your company as well." | 2.5 | Fundamental |
| Overcurrent Protection I - Short Circuit Calculations | This 3-hour interactive online course reviews the principles of electric systems during faulted conditions and how short circuit currents are calculated in both three-phase and single-phase systems. Since short circuits have such damaging impacts on an electric system, the magnitude of the expected faults currents and their impact on the components in the circuit must be understood. The simplified analytical procedures presented in this course will allow the user to quickly determine the expected level of fault currents in an electric system. These procedures are generally considered adequate for most applications of 600-volts or less.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Overcurrent Protection II - Coordination | "This 3-hour interactive online course reviews the principles of operation and coordination of electric system equipment during faulted conditions. Since short circuits have such damaging impacts on electrical equipment, their impact on the components in the circuit must be understood. The purpose of this course is to explain how the various protective devices react to faulted conditions and how to select the appropriate devices to ensure proper coordination. The theory of operation of protective devices is reviewed as well as how to properly coordinate the devices for selective coordination. Various electrical devices are reviewed including fuses, current limiting fuses, circuit breakers, transformers, conductors, busways, and motor controllers.<br>This course reviews the principles of electrical equipment operation and coordination on an electric system during faulted conditions.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 3 | Advanced |
| Overhead Crane Basics | Components and functions of overhead cranes, function of rigging and slings, and common pre-use safety inspections for cranes and rigging. | 0.25 | Intermediate |
| Overhead Crane Operational Safety | The importance of the load capacity for an overhead crane and rigging; effect of sling angle; safe procedures for lifting, moving, and setting down a load; safe procedures for operating a crane near people; and importance of personal protective equipment. | 0.25 | Intermediate |
| Overhead Hoists | Do you know the basic safety and functional characteristics of working with a hoist? This interactive online course is intended for those authorized to operate or work around motorized and hand-operated hoists. You will learn about the different types of hoists and will be able to identify some of the instrumental parts of the hoists. Well show you how hoists are powered and how to operate them and inspect them safely. The material in this course is meant to supplement and support the training necessary to safely operate certain motorized and hand-operated hoists. This course provides the essentials of hoist operation and must be accompanied by both a knowledge and operational examination to determine competency of the operator. This course, alone, does not authorize operation of hoists. | 0.5 | Intermediate |
| Package: The Ultimate Project Manager Series | This package includes all 26 hours of the Ultimate Project Manager series. | 26 | Intermediate |
| Pallet Jack Safety | A pallet jack is a relatively simple device that allows a person to pick up and move a palletized load which can weigh several times that of the operator. A typical manual pallet jack consists of a small frame that supports two low forks that are designed to fit under a pallet. A handle, or tiller, connected to the frame provides a method to push or pull the jack, to steer it, and a way to hydraulically elevate the forks. This course will focus on the principles of operation and instructions for safe use of the manual type of pallet jack. | 0.25 | Intermediate |
| Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in parallel are connected so the same voltage is applied to each component. In this course, participants will learn about the fundamentals of parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Password Security Basics | This course provides an overview of password security and management, including the basic principles of password security, the elements of a strong password, and strategies of how to create and maintain passwords. | 0.25 | Fundamental |
| Past, Present and Future of Building Energy Codes and DOE Appliance Mandates | National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continued to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates. | 2 | Intermediate |
| Pedestrian Safety | Basic training on safely walking in active work zones. Learn about blind spots, the importance of eye contact, and designated walkways. Covers pedestrian safety guidelines, mobile equipment guidelines, and forklift driver guidelines. | 0.25 | Intermediate |
| Peer Checking | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Peer Checking human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Performance Management: 01-Preventing Performance Problems | The most effective method for managing performance problems is preventing them. As a manager, its important that you have the knowledge and tools used to prevent performance problems. To start out you'll concentrate on how to successfully hire people that will contribute to your organizations skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. You'll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Performance Management: 02-Identifying Performance Problems and Causes | Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. You'll also explore the role that personality plays in performance problems. You'll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 03-Feedback and Counseling | The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 04-Effectively Disciplining Problem Performance | Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. You'll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change. | 1 | Intermediate |
| Personal Accountability for Safety | The goal is for every person to go home safe every day. To achieve this, we must all be personally accountable for safety. This module describes what it means to be accountable and how you can demonstrate personal accountability. | 0.25 | Intermediate |
| Personal Protective Equipment | Every day, someone decides to give up their sight, hearing, fingers, toes, or worse to save a few seconds of effort. Sure it can be inconvenient and uncomfortable, but using personal protective equipment (PPE) properly is better than many unfortunate alternatives. Use this course to educate yourself and your team on head protection, eye and face protection, hand protection, foot protection, respiratory protection, and hearing protection. | 0.67 | Intermediate |
| Personal Protective Equipment For Mold Remediation Contractors and Consultants | From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. | 1 | Fundamental |
| Personal Safety for Lab Technicians | This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Persuasion: The Art of Communication | All communication is persuasion! This course teaches you to communicate well and persuade effectively. There are many reasons why we communicate - to inform, to share our viewpoint, to educate, and to sell. Communications guru Barbara Evers would argue that all these forms of communication are in fact forms of persuasion. In this course Barbara Evers and Wofford Jones walk through tips and techniques to take advantage of when you need to communicate and persuade. | 1.25 | Fundamental |
| Pipes and Valves: Basic Pipefitting Skills | Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square. | 2 | Intermediate |
| Pipes and Valves: Calculating Offsets | Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets. | 2 | Intermediate |
| Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe | Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method. | 2 | Intermediate |
| Pipes and Valves: Installing Pipe Hangers and Supports | Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors. | 2 | Intermediate |
| Pipes and Valves: Installing Screw and Welded Pipe | Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping. | 2 | Intermediate |
| Pipes and Valves: Pipes and Pipe Fittings | This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe. | 2 | Intermediate |
| Pipes and Valves: Special Calculations | Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures. | 2 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pipes and Valves: Valve Maintenance | This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it. | 2 | Intermediate |
| Pipes and Valves: Valve Types and Operation | This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated. | 2 | Intermediate |
| Piping and Auxiliaries: Basic Components and Functions | This course is designed to familiarize participants with some of the basic components commonly found in piping systems. After completing this course, participants should be able to state the purpose of piping and pipe fittings and describe some common types of pipe fittings. They should also be able to describe devices that are used to accommodate the weight and movement of piping, and they should be able to explain how insulation and heat tracing help to control temperatures in piping systems. | 2 | Intermediate |
| Piping and Auxiliaries: System Components and Operation | This course is designed to familiarize participants with some of the auxiliary components commonly found in piping systems. After completing this course, participants should be able to describe the function and operation of rupture discs, relief valves, safety valves, and some common types of steam traps. They should also be able to describe basic procedures for draining and filling liquid systems, and they should be able to describe some typical operator checks for fluid systems. | 2 | Intermediate |
| Plant Science: Fluid Systems | This course is designed to introduce participants to the characteristics, components, and operation of fluid systems. After completing this course, participants should be able to explain, in general terms, what a plant system is and what a fluid is. They should also be able to explain the basic layout of a liquid system and describe energy conversions in a liquid system. Participants should also be able to describe the basic parts of a compressed air system and the basic operation of several gas and vapor system devices. | 2 | Intermediate |
| Plant Science: Forces and Machines | This course is designed to introduce participants to scientific principles associated with applied forces and the operation of basic machines. After completing this course, participants should be able to define work, power, and efficiency; and explain the mechanical advantage of this inclined plane and the lever. They should also be able to explain the hydraulic principle and the relationship between friction and the operation of machines. | 2 | Intermediate |
| Plant Science: Gases and Flowing Liquids | This course is designed to familiarize participants with basic concepts associated with the properties of gases and flowing liquids. After completing this course, participants should be able to describe the major properties of gases and explain how these properties are related. They should also be able to explain how pressure can be measured and to describe the effects of flow, velocity, and friction on the head pressure of a liquid. | 2 | Intermediate |
| Plant Science: Heat | This interactive training is designed to introduce you to some of the basic principles associated with heat and heat transfer. In this course, we will describe some of the effects of heat, the relationship between temperature and thermal energy, and the Law of Energy Conservation. We will define the terms "sensible heat" and "latent heat." Also, we will discuss the effects of pressure on the temperature at which a substance undergoes a phase change. | 0.5 | Intermediate |
| Plant Science: Solids and Liquids | This course is designed to familiarize participants with basic scientific principles that relate to solids and liquids. After completing this course, participants should be able to describe the general molecular structure of solids, liquids, and gases. They should also be able to describe specific properties associated with solids and liquids. | 2 | Intermediate |
| Plumbing Basics | "Confused about the difference between PVC and CPVC piping? Can you explain how copper pipe is swaged or sweated? How is PVC pipe joined or connected? This course looks at three types of plumbing piping; plastic, steel and copper. At the end of this training you will have general knowledge of the uses for plastic, steel and copper pipe. You will know what fluids each type of pipe can convey safety. Joining methods suitable for each type of pipe will be discussed. While the material presented in the training is not intended to lead directly to performing these joining techniques, you should be able to discuss the techniques and be able to inspect piping systems. With assistance and guidance from a skilled plumber, you should be able to start performing joining techniques, especially gluing of PVC pipe. Finally, you will also understand the potential hazards in each of the pipe joining methods." | 0.5 | Fundamental |
| Plumbing Maintenance | Did you know caulking around the toilet base and the floor can confine a water leak allowing it to enter the floor structure and damage it? Basic plumbing repair, maintenance procedures, and skills are required to properly maintain the fixtures used in public restrooms and commercial facilities. Some of the most common plumbing fixtures used in these buildings include; toilets, urinals, sinks, and the associated valves, traps, piping, and sealing components. This interactive online course covers the plumbing maintenance course covers the operation and maintenance of basic components used in water supply and drainage systems of households and commercial restrooms. The tools and techniques to perform these basic plumbing projects are presented. Procedures to perform basic repairs and replacement of various types of traps and valves are discussed and demonstrated using illustrations and photos. | 0.5 | Fundamental |
| Plumbing: Backflow Preventers | "Backflow is an often unknown or misunderstood phenomena. Even less understood is the purpose of backflow preventers and how they operate. Backflow is a condition in which water in a building or facility will flow backwards, creating a potential hazard to the domestic water system. Without a properly selected, installed, maintained and tested backflow device, hazard conditions resulting in illness or even death can occur. In this interactive online course, you will be introduced to what backflow is, under what conditions backflow can occur and the provisions to prevent backflow from occurring. Several key definitions will be presented and the operation of each type of backflow preventer is briefly explained. At the end of this training you will have a workable understanding of backflow devices and how to troubleshoot breakdowns." | 0.5 | Fundamental |
| Plumbing: Pipe Fitting | "Do you know the difference between a ""street ell"" and a ""dielectric union""? A thorough understanding of plumbing systems is not possible without knowledge of the importance of fittings. While fittings are small and seldom seen, their importance cannot be overstated. Fittings provide the accessories to complete a plumbing system. Couplings allow multiple pipe sections to be connected. Elbows provide the mechanism for pipes to change direction. Unions are essential for easily disassembling plumbing systems for maintenance and repair. Plastic, steel and copper water piping systems will be covered, for waste systems plastic and cast-iron piping will be discussed. The unique connection methods for each piping material will be reviewed. While there are dozens of fittings available to the plumber only the most common ones will be presented including, couplings, elbows, unions, nipples and reducers. The cause of galvanic corrosion will be examined along with the fitting that prevents this type of corrosion. At the conclusion of this training you will be able to describe the connection method of various pipe materials and the tools and techniques required. You will be able to identify and describe a "street ell" and a "dielectric union". You will become aware of troubling procedures for leaking unions. Finally, information on drain piping and the connection methods using "no-hub fittings will be presented." | 0.5 | Fundamental |
| PMBOK® Guide - Sixth Edition: 01-Project Management Overview | Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services. | 1.25 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations | In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups | Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling | In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure | Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan | A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope | One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope | A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities | Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule | Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration | One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 12-Controlling Costs | Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 13-Estimating & Budgeting Project Costs | Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 14-Project Quality Planning | Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control | A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources | The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources | As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications | Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 2 | Intermediate |
| PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan | One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks | In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis | All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 22-Risk Management Planning | Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control | Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project | This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bitter conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project | As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning | Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication | Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline | Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam. | 1 | Advanced |
| PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020 | "Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification." | 1 | Advanced |
| Pneumatic Building Automation Basics | "Pneumatic systems are simply a division of engineering which uses gas or pressurized air. Pneumatic control systems can be effective and economical. In HVAC systems, this control method relies on sensors and thermostats that retain the line pressure from the sensor to the control device and the actuator. This interactive online course will provide a basic understanding of the components that make up a pneumatic system including the conditioning and operating systems. An introduction to pneumatic actuators, electro-pneumatic transducers, and pneumatic thermostats is included. Additionally, you'll learn about certain hazards associated with maintaining a pneumatic system and the proper safety precautions and maintenance techniques that will minimize these hazards." | 0.5 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pneumatic Tool Safety | Pneumatic tools are powered by compressed air. Common air-powered hand tools include jack hammers, chipping hammers, wrenches, grinders, and nail guns. Some of these tools shoot or create projectiles which can cause bodily injury. Additionally, pneumatic tools produce ear-damaging noise and release atomized oil and water vapor into the air. This module describes pneumatic tools hazards and how to deal with them. | 0.25 | Intermediate |
| Pneumatics: Actuators and Positioners | Typically, pneumatic actuators and positioners are rugged and dependable. But like any other piece of equipment, their parts can wear out from the rigors of around-the-clock use and may need to be replaced or adjusted from time-to-time. In this interactive online course, we're going to look at several different actuators and positioners to see what their component parts are, how they work, and how to adjust them. | 1 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems | "In your plant, there are process conditions that can vary or change, such as temperature, pressure, flow and level. Frequently, these process variables must be maintained at or near a desired value. Understanding how these systems operate will allow you to manage your system at desired operating conditions.<br>This interactive online course will teach you about the elements normally found in a basic pneumatic control system. You will learn about control systems used to maintain temperature, pressure, flow and level. Additionally, you will learn about resources that provide information about pneumatic control systems." | 1 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems and Diagrams | "Pneumatic instruments play an important role in the overall operation of a plant. Knowing how to troubleshoot and fix problems with pneumatic instrument systems will allow you to get your plant quickly back into operation.<br>This interactive online course will use an example of a level control system to teach you about pneumatic instrumentation, basic pneumatic instrument groups and their functions. You will also learn about commonly used plant system diagram symbols and how they are used in diagnosing and correcting problems in the instrument systems found in your plant. " | 1 | Intermediate |
| Pneumatics: Controllers | "In industrial process plants, it's critical for pneumatic controllers to work properly and to be adjusted correctly. Understanding how controllers operate will help you when you're repairing a controller or tuning a pneumatic control system.<br>This interactive online course will teach you about several types of pneumatic controllers. You will learn how these controllers operate and how to make basic adjustments to the controllers. You will also learn the mechanisms in a controller and how their four basic functions operate." | 1 | Intermediate |
| Pneumatics: Indicators and Hand-Auto Control Stations | "Transmitters, recorders, signal converters, indicators, and hand-auto control stations are all important pieces of instrumentation and control equipment used in pneumatic systems. Understanding how these instruments function will allow you to maintain your system at desired operating conditions. This interactive online course will teach you about the relationship between the input and output of a transmitter and how a pneumatic transmitter develops an output pressure signal that accurately represents the value of a process variable. You will also learn how to perform calibration adjustments on a typical pneumatic transmitter. Additionally, you will learn the function and purpose of hand-auto control stations." | 1 | Intermediate |
| Pneumatics: Multi-Element Pneumatic Control Systems | "Multi-element pneumatic control system,s like all process control systems, operate primarily to maintain a process variable (such as level, temperature, flow, or pressure) at or near a predetermined value known as set point. This interactive online course focuses on several types of multi-element pneumatic control systems that are commonly used in industrial plants. The basic design and function of the control system are explained, and emphasis is also placed on how the instruments and componenets in the system work together to keep a process variable at or close to set point." | 1 | Intermediate |
| Pneumatics: Pneumatic Instrument Tubing | In any industry that uses pneumatic instrument systems to monitor and control plant processes or conditions, you'll discover miles of associated pipes and tubing routed throughout the plant. Without these intricate networks of piping and tubing, a plant couldn't operate. The important job of installing pipe and tubing for pneumatic control systems often belongs to you, the instrument technician. You'll be concerned specifically with installing pipe for instrument air supplies and tubing from one component to another in pneumatic systems that control process variables. Our goal in this interactive online course is to examine the basic skills and information you need to know to install piping and tubing for a pneumatic control system. To meet this goal, we'll observe a qualified technician as he puts a piping and tubing installation together. We'll take a close look at the materials and tools he uses and the technique he applies. However, before we start to do any actual work with pipe or tubing, we need to establish what pipe and tubing are, and we need to take a look at the major characteristics of each; their function, the important size factors for both, and the type of material they're made of. By doing this, we'll have a better understanding of how pipe and tubing are similar in some respects but different in others. | 1 | Intermediate |
| Pneumatics: Self Balancing Instruments | At first glance, most pneumatic control equipment seems like a maze of bellows, cams, beams, and other mechanisms packed into a small area. Sometimes the design makes it appear as if the instrument is hard to understand. However, many of these instruments are fairly easy to understand if you know what you're looking for. In this interactive online course, we'll look at a few types of force balance and motion balance instruments in greater detail. We'll see how they operate and where common adjustments are located. | 1 | Intermediate |
| Pneumatics: Transmitters | "Most pneumatic instruments have in common basic components and structures. And even though they may look different, their operation is often quite similar.<br>In this interactive online course, we will cover the information needed to recognize the common components and structures of most pneumatic instruments and to understand how the common structures are related. We will cover types of pneumatic instruments, components, and mechanisms, self-balancing instruments, input mechanisms, error detector mechanisms, and output/balancing mechanisms." | 1 | Intermediate |
| Pneumatics: Troubleshooting Pneumatic Instrument Systems | "As an instrument technician you're going to find yourself doing a lot of troubleshooting. By using a logical procedure, you can face each problem confidently and solve the problem logically and efficiently.<br>This interactive online course will teach you the principles of troubleshooting and how to apply them to troubleshooting pneumatic instrument systems. You will learn how to observe, diagnose, and restore pneumatic instrument systems following troubleshooting principles. Additionally, this course will walk you through a troubleshooting example to demonstrate how to diagnose and resolve a pneumatic instrument system issue." | 1 | Intermediate |
| Pneumatics: Tuning Pneumatic Control Systems | When you tune a control system, you check and adjustment the instruments in the system to ensure that it operates within specified limits. The procedure's a lot like tuning an automobile engine. No two engines are the same, but if you know the engine and you use a logical tuning method, you can probably do the job. Now, in a plant, no two process control systems are exactly the same, but with the right knowledge and resources, you can tune a variety of control systems. In this interactive online course course, we'll look at some of the basic principles of tuning a pneumatic control system. Then, we'll look at the process characteristics that are important in tuning, and we'll examine some common tuning methods. Afterwards, we'll see how an instrument technician tunes a control system. Most of the information that you'll learn from this course can be applied to the pneumatic control systems in your plant. | 1 | Intermediate |
| Pollution Prevention Best Practices | Pollution is the contamination of the environment by substances that harm plants, animals, people, or natural resources. Most people are familiar with the three major forms of pollution: air, water, and land. Polluting these natural resources has both local and global impacts. This course describes ways to identify and reduce pollution at its source. | 0.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Portable Loading Ramps | Portable loading ramps, also called portable loading docks, forklift ramps, mobile ramps, or yard ramps, provide access to semi-trailers and boxcars from ground level. They can be used in places where permanent loading docks do not exist, such as farm fields or construction sites, or as a cost effective way to expand material handling capabilities. Portability provides the flexibility to load and unload trailers close to the storage location, which can significantly reduce transportation distances in large facilities. This course will cover the basic features and safe operating guidelines for portable loading ramps. | 0.25 | Intermediate |
| Positive Displacement Pump Maintenance Basics | The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures. | 1 | Intermediate |
| Positive Displacement Pumps | A positive displacement pump works by capturing a given volume of liquid at the suction of the pump, and then mechanically forcing it out of the discharge at a higher pressure. In contrast to centrifugal pumps, in which the flow is affected by downstream pressure, positive displacement pumps (within the limitations of the driver) deliver a nearly constant flow, independent of the downstream pressure. Positive displacement pumps can be categorized as reciprocating or rotary action pumps. This course describes the general characteristics of positive displacement pumps and the principles of operation of various common designs. | 0.5 | Intermediate |
| Power BI Essentials | Learn to create stunning reports with real-time data. In Microsoft's Power BI, you can connect to existing data to create modern data visualizations and reports. In this course, you will learn everything you need to know to design reports, charts, and dashboards and distribute them to your team. We will walk you through the process from install to publish. | 1 | Fundamental |
| Power Supplies | An electronic power supply is a device, or a group of devices, that converts normal generated alternating current (AC) power into power that is suitable for electronic equipment. An electronic power supply typically includes some or all of the following types of devices: transformers, rectifiers, filters, regulators, voltage multipliers, and voltage dividers. The components of a specific power supply are directly related to the requirements of the electronic equipment being served. | 1 | Intermediate |
| Power Up PowerPoint | "Giving A Presentation? If You Want To Avoid Boring Your Audience To Tears, This Course Is A Must<br>Most Presentations Are Filled With Bullet Point Lists, Thick Paragraphs Of Text, And The Occasional Picture In A Desperate Attempt To Break Up The Monotony ... but you can do better than that! This course shows you ways to turn standard content into something that's ACTUALLY INTERESTING to your audience.<br>Taught by presentation skills guru Kelly Vandiver and TEDx speaker Dr. Rebecca Heiss, Power Up PowerPoint will show you how to "power up" your next presentation!" | 2.75 | Intermediate |
| Powerful Presentations | Audiences decide if a presentation is worth paying attention to in the first 1-2 minutes. To be an effective presenter, there are multiple factors to consider and skills to develop. In this course, through the use of application exercises and a rich multi-media process, you will learn the key skills to creating powerful presentations that get results. | 0.5 | Intermediate |
| Pressure Washing Best Management Practices | Pressure washing generally refers to the practice of using water sprayed through a nozzle at high pressure to clean or strip material from various surfaces. This technique typically produces contaminated wastewater that can flow into a nearby waterway without proper intervention. This course describes pressure washing best practices and steps to take to avoid polluting open water. | 0.5 | Intermediate |
| Preventing Intersection Collisions - Cross Traffic | Intersections are one of the most dangerous locations on any roadway. You should pay particular attention to the cross traffic as you approach the intersection. Cross traffic includes all road users that are traveling on the intersecting road and may cross or enter your path. This course will identify common contributing factors to cross traffic intersection collisions and strategies to prevent intersection collisions due to cross traffic. | 0.25 | Intermediate |
| Preventing Intersection Collisions - Rear-ends | More than 25 percent of all car crashes are rear-end collisions. A rear-end crash occurs when the front of one vehicle comes into contact with the rear of another vehicle. This course will describe contributing factors to rear-end crashes and identify strategies to prevent rear-ending or being rear-ended by another vehicle. | 0.25 | Intermediate |
| Preventing Intersection Collisions - Turning | Intersections are one of the most dangerous locations on the roadway. Research has shown that a large number of crashes every year occur in an intersection or are intersection-related. This course identifies intersection hazards and strategies to prevent crashes in intersections. | 0.25 | Intermediate |
| Preventing Loss of Control Crashes | Have you ever unexpectedly lost control of your vehicle while driving? Perhaps you lost control of your vehicle in inclement weather. Maybe it was raining hard and you applied the brakes suddenly, or you crossed a bridge that was covered with ice. Or, maybe you lost control because you had to suddenly steer to avoid hitting another vehicle or object. If so, you are not alone. These are all common factors that lead to loss of control events. This course will identify common loss of control crashes and then discuss ways to reduce loss of control and how to regain control. | 0.25 | Intermediate |
| Preventing Mold Growth | Preventing fungal growth begins with the building design and follows all the way through responding to a water intrusion event. This course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. | 1 | Fundamental |
| Preventing Sideswipe Collisions | Have you ever noticed another vehicle drifting slowing across the lane line into your lane? Or perhaps your vehicle was the one unintentionally crossing the lane line into another lane? If so, you are not alone, this is a common sideswipe crash scenario. This course will identify potential hazards that may lead to sideswipe crashes and best practices for avoiding those hazards. | 0.25 | Intermediate |
| Preventing The Spread Of Contagious Illness | This new program, which includes information about seasonal flu, avian flu, SARS and MRSA in addition to swine flu, explains the origins and symptoms of these illnesses as well as the general hygiene and prevention measures required to prevent spreading and contracting all contagious illnesses. The video stresses prevention and the personal responsibility required to avoid spreading an illness or infection.Topics covered also include:Decontaminating work areasSpecial MRSA precautionsResponding to a potential infectionMedical diagnosis and treatment of contagious illnesses | 0.25 | Fundamental |
| Preventive Maintenance Basics | Did you know filter maitenance can prevent premature failure in HVAC systems? There are several routine preventive maintenance tasks required to maintain indoor air quality and keep a building's heating and cooling systems running efficiently. This interactive online course covers basic filter replacement best practices, v-belt replacement and alignment procedures, how to clean a coil, basic lubrication techniques, and daily rounds and readings and how to perform them. | 0.5 | Fundamental |
| Pricing as a Professional | This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Problem Solving | Problem Solving is a course designed to familiarize participants with a basic process that can be used to solve almost any type of problem in the workplace. After completing this course, participants should be able to define a problem and the goal for its solution. They should then be able to work their way through the basic problem solving process.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Procedure Use and Adherence | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Procedure Use and Adherence human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Process Safety Management | Process Safety Management is the identification, evaluation, and prevention of highly hazardous chemical releases that could occur as a result of catastrophic failures in processes, procedures, or equipment. This course covers the components of the OSHA regulation in detail. | 0.5 | Intermediate |
| Process Safety Management (PSM): 1910.119 Overview and Auditing | "The OSHA 1910.119 Process Safety Management (PSM) regulation applies to many companies that use and process flammable liquids as well as hazardous chemicals. With 14 required elements - it's a very comprehensive and challenging regulation. The PSM regulation literally changes the way affected companies run their business. This course will show you how to develop an effective PSM Program as well as survive an OSHA PSM inspection." | 1 | Intermediate |
| Process Safety Management (PSM): An Overview | This overview of PSM will provide a basic understanding of what PSM is and the topics that comprise it. PSM addresses Highly Hazardous Chemicals identified by OSHA and the process industries. These chemicals require safety considerations over and above normal chemicals. These safety considerations are the basis of PSM. Following course completion you will be able to identify key elements and what is and is not acceptable under PSM. | 1 | Intermediate |
| Process Safety Management (PSM): Compliance Audits | Compliance audits serve as a self-evaluation for employers to measure the effectiveness of their process safety management system. Audits can identify problem areas and assist employers in directing attention to process safety management weaknesses. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of compliance audits as part of the overall process safety management program. You will also learn how to implement compliance audits into your overall process safety management program and how to evaluate compliance with process safety management compliance audit requirements. | 1 | Intermediate |
| Process Safety Management (PSM): Contractors | "On October 23, 1989, an explosion occurred at the Phillips Petroleum polyethylene plant in Pasadena, Texas. A massive vapor cloud was created causing 23 fatalities and over 100 injuries. Investigation into the incident revealed that a specialist maintenance contractor employed to do work on one of the reactors did not follow the proper procedures prior to maintenance work. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. Because contractors perform crucial activities on PSM covered processes, unsafe contractor work may jeopardize other employees as well as the contractors themselves. In this interactive online video course, safety expert Jon Wallace discusses the elements of the PSM Contractor requirement, including contractor selection, training, and evaluation. It is critical that contractors understand potential hazards of their work environment; therefore, a solid understanding of the PSM Contractor requirement will help ensure employers correctly train contractors on OSHA regulations. " | 1 | Intermediate |
| Process Safety Management (PSM): Emergency Planning & Response | Proper training and preplanning is an essential part of an emergency action plan and can help prevent disasters from occurring. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of emergency planning and response as part of the overall process safety management program. You will also learn about emergency planning and response requirements and how to implement emergency planning and response into your overall process safety management program. | 1 | Intermediate |
| Process Safety Management (PSM): Employee Participation | " The Union Carbide explosions in Bhopal India, 1984 and Institute, West Virginia in 1985. The Phillips Petroleum explosion in 1989, and ARCO explosion in 1990. These are just four major incidents that led to the OSHA Process Safety Management Standards. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released. The employee participation element is a critical part of PSM that enhances overall effectiveness in areas including Process Hazard Analysis (PHA) and Incident Investigation. In this interactive online video course, learn from industry expert Jon Wallace about the employee participation component of the Process Safety Management Standards. Subjects covered include employer requirements for a written plan of action to confirm employee participation, consultation with employees regarding hazards, and employee access to process hazard analysis. Employers must follow OSHA regulations and ensure employee participation and EPA Clean Air Act Amendments are implemented in training." | 0.5 | Intermediate |
| Process Safety Management (PSM): Hot Work Permits | In January 2008 there was a fire at the Monte Carlo Resort and Casino in Paradise, Nevada. Welders at the time did not use fire protection mats, and the resulting fire caused 100 million dollars in damage, with thirteen people suffering from smoke inhalation and seventeen people suffering from minor injuries. This could have been prevented with an effective Project Safety Management Hot Work Permit Program. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. The Hot Work Permit Program is one of the fundamental components of occupational safety. Hot Works is geared towards any work that produces sparks or flames, and can includes welding and cutting among potential ignition sources. In this interactive online video course, safety expert Jon Wallace discusses the components of an effective Hot Work Permit program, how to implement it, and how it can prevent property damage, and loss of life. An effective Hot Works Permit Program will also help avoid OSHA violations. | 1 | Intermediate |
| Process Safety Management (PSM): Incident Investigations | There have been many incidents involving multiple losses of life that led to the formation of the OSHA Process Safety Management Standard. Learning from past incidents and investigating the root causes of these incidents can help us be prepared and prevent history from repeating itself. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of incident investigation as part of the process safety management program. You will also learn about incident investigation requirements, and how to implement an incident investigation program into your overall process safety management program. | 1 | Intermediate |
| Process Safety Management (PSM): Management of Change | Uncontrolled change contributes to 80% of serious industrial accidents. Management of Change (MOC) requires written procedures to manage changes to process chemicals, technology, equipment, facilities and procedures that affect a covered process. Any potential change is evaluated for its impact on the process and all affected personnel will be informed and trained in the change prior to start-up of the process. In addition, any change requires all other elements of PSM to be updated to reflect the change. Lack of or an ineffective Management of Change Program is a ticking time bomb that will eventually explode. | 0.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Process Safety Management (PSM): Mechanical Integrity | Mechanical Integrity (MI) rivals Process Safety Information in complexity and receives the most OSHA citations. This is because MI addresses most of the equipment in a process and is therefore very broad. MI requires written procedures to maintain the integrity of process equipment and training for process overview, hazards and employee task procedures. Typically the most important task for Mechanical Integrity is equipment inspection and testing. This course offers a working knowledge of Mechanical Integrity and its many elements. | 0.5 | Intermediate |
| Process Safety Management (PSM): Operating Procedures | "Methyl isocyanide, aldicarb oxime, anhydrous ammonia. These are just three examples of highly toxic chemicals that have been released into the atmosphere as a result of chemical plant explosions in recent years. Exposure to highly hazardous chemicals can be fatal; therefore, Process Safety Management (PSM) was designed to help prevent such chemicals from being released. PSM outlines steps for the management of hazards associated with processes using highly hazardous chemicals. Because most PSM covered processes are complex operations, the need for clear operating procedures is critical in order to maintain a safe and healthy work environment. In this interactive online video course, industry expert Jon Wallace discusses the required elements for operating procedures, including steps for each operating phase, operating limits, and safety and health considerations. A solid understanding of this information will help ensure employers are in compliance with OSHA PSM regulations." | 1 | Intermediate |
| Process Safety Management (PSM): Pre-Startup Safety Review | "On August 28, 2008, an explosion at the Bayer Crop Science plant in Charleston, West Virginia killed two workers and injured eight others. The ignition of a five-thousand pound chemical vat occurred during the restart of the methomyl unit after upgrades were performed on the system. Incident investigation revealed several causes, including inadequate pre-startup safety review, and inadequate operator training on the new system.<br>This is an example of the importance of Process Safety Management (PSM). PSM is aimed at preventing highly hazardous chemicals from being released, and startup and shutdown are potentially the two most dangerous times for a PSM process. In this interactive online video course, safety expert Jon Wallace discusses the components of the PSM Pre-Startup Safety Review. The purpose of this review is to ensure safe operation of a PSM covered process by identifying and correcting unsafe conditions prior to process operation. " | 1 | Intermediate |
| Process Safety Management (PSM): Process Hazard Analysis | Process Hazards Analysis (PHA) is best described as the building block for the successful PSM program. This course provides an overview of Process Hazards Analysis, acceptable methodologies and information required for PHAs. PHAs identify, evaluate, and control the hazards involved in the process. Priority of PHAs is determined by such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. This course is an introduction to PHAs and does teach how to conduct a Process Hazards Analysis. | 0.5 | Intermediate |
| Process Safety Management (PSM): Process Safety Information | Process Safety Information (PSI) identifies the many types of information necessary to convey an understanding of a PSM covered process. Process Safety Information is typically grouped into three topics: hazards, technology and equipment. The hazards of the process must be communicated to employees. The process technology of designing safe systems, safety components and devices help employees understand the safety built into the process. The key point of Process Safety Information is not to remember it, but to know where to find the information if needed. | 0.5 | Intermediate |
| Process Safety Management (PSM): Trade Secrets | There are companies that have millions of dollars in trade secrets and making that information accessible to competitors or the general public can have a significant effect on their competitive advantage. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about trade secret requirements outlined in the process safely management standard. You will also learn about your company's rights and responsibilities with respect to company trade secrets and OSHA's rights and responsibilities to access trade secret information. | 0.5 | Intermediate |
| Process Safety Management (PSM): Training | " On January 31, 2006, an explosion caused by a runaway chemical reaction rocked the Synthron facility in Morganton, North Carolina. One worker was fatally burned, and 14 others were injured (two seriously). The explosion destroyed the facility and damaged structures in the nearby community. Incident investigation revealed that Synthron had minimal safety information on its chemical processes, and personnel were poorly prepared to recognize dangers from an uncontrolled chemical reaction. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released, and effective training is needed to ensure the safe operation of oftentimes complex operations. In this interactive online video course, industry expert Jon Wallace discusses the elements of the PSM Training requirement, including initial training, refresher training, and training documentation. A solid understanding of the details of this requirement will help ensure employers are in compliance with OSHA PSM regulations." | 1 | Intermediate |
| Project Management Essentials | Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations. | 2 | Fundamental |
| Project Risk Management | "This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management.<br>There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 2 | Intermediate |
| Project Team Management | "This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization.<br>There is a test included at the end of this course.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Intermediate |
| Property Management Safety - Employee Slips and Falls | Property management company employees work in many types of varied environments. Inside, outside, rain, snow, and wet floors are just a few of the many slip hazards they face. This training program is designed to promote awareness of slips and falls from a property management perspective. It trains your employees on various potential hazards, the importance of proper maintenance and cleaning procedures, and many other aspects of slip and fall prevention. This DVD contains both English and Spanish versions. | 0.15 | Fundamental |
| Property Management Safety - Fire Prevention | Few things can be more terrifying and catastrophic than a fire, especially in a multi-unit property environment. That is why training and education is so important. This video program trains your employees on ways fires can be prevented, conditions that contribute to fires and the steps employees can take to minimize the risk of a potential fire in a unit. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Property Management Safety - Personal Protective Equipment | During their workday, property management maintenance personnel can face many different types of safety situations. As such, it is important that they be properly trained on what Personal Protective Equipment is required and how to use it. Personal Protective Equipment is often overlooked. Failure to utilize the correct PPE can have disastrous, life-changing results. This video emphasizes to your employees the importance of making sure they have and use the proper PPE in a multi-unit complex environment. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Resident Safety | In every property management environment, nothing is more important than the safety of your residents. There a many hazards that can exist when you have a large number of people living close to each other. Fire prevention, cleanliness and maintenance are just a few of the subjects covered in this production training program. This video highlights trains your employees on the key issues relating to safety in regards to new residents. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Resident Slips and Falls | When a resident in a multi-unit property injures themselves through a slip or fall, the potential liability exposure to management is great. All property management employees must be aware of this and what their responsibilities are to keep slip and fall hazards to a minimum. With a focus on exterior and weather related hazards, this training program is designed to train your employees on what types of hazards to look for and how they should be corrected. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection | "As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological, and explosive (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters." | 1 | Intermediate |
| Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters | The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks. | 1 | Fundamental |
| Protecting People Against Terrorist Attacks: Structural Design Criteria | "There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events." | 2 | Intermediate |
| Protecting Water Systems Through Backflow Prevention | "Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system.<br>Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance." | 1 | Intermediate |
| Protecting Your Team Against Workplace Violence | Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents. | 1 | Fundamental |
| Protection Against Malware | Malware is a primary means of attack for cyber-perpetrators. This course provides staff members with an overview of basic protection against malware. Topics include: the types of malware, how malware works and protective strategies | 0.25 | Fundamental |
| Providing Performance Feedback: 01-The Power of Performance Feedback | Discover when to give performance feedback to team members and what sources to use for information. | 1 | Intermediate |
| Providing Performance Feedback: 02-Providing Verbal Performance Feedback | Practice providing verbal performance feedback to team members using key concepts in the course. | 1 | Intermediate |
| Providing Performance Feedback: 03-Providing Written Performance Feedback | Learn how to provide effective feedback in writing to empower team members. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Providing Performance Feedback: 04-Your Path to Providing Performance Feedback | Learn and apply the five-step process for providing timely performance feedback to a team member. | 1 | Intermediate |
| Providing Performance Feedback: 05-Mastering Providing Performance Feedback | Practice Providing Performance Feedback in a full scenario situation. | 1 | Intermediate |
| Providing Performance Feedback: 06-Providing Performance Feedback Health Check | Test your ability to apply Providing Performance Feedback concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Pumping Stations - Pumps, Motors and Electrical Systems | "Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations." | 2 | Fundamental |
| Pumps Introduction | "Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Understanding the basics of fluid mechanics and the operation of different types of pumps is an essential step toward being able to understand, troubleshoot and improve a wide variety of processes.<br>This course includes a brief overview of fluid mechanics as well as the differences between centrifugal and positive displacement pumps, including their operational characteristics and applications." | 0.25 | Intermediate |
| Pumps: Fundamentals of Centrifugal Types | This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system. | 2 | Intermediate |
| Pumps: Multistage Centrifugal | This course is designed to familiarize participants with the basic operation, disassembly, and reassembly of a typical multistage centrifugal pump. After completing this course, participants should be able to describe the components and operation of a multistage centrifugal pump and explain how this kind of pump can be disassembled and reassembled when necessary. | 2 | Intermediate |
| Pumps: Operation of Centrifugal Types | This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump. | 2 | Intermediate |
| Pumps: Performance and Inspection | This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations. | 2 | Intermediate |
| Pumps: Reciprocating Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Pumps: Rotary Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| R & D Chemical Hygiene | Significant injures, damage to facilities and disruption of work can occur when chemicals are not properly stored and handled. By the end of this course, you will learn about the hazards of working with chemicals in a Research and Development Laboratory. | 1 | Intermediate |
| R & D Waste Management | This course is structured to provide a general overview of waste streams that can be generated in a research and development (R & D) laboratory. Information is also provided concerning the federal regulatory agencies that oversee chemical waste in a research laboratory setting and applicable guidance from those agencies. In this interactive online course, you will learn that no matter how big or small your research laboratory, you should have a chemical hygiene plan in place to protect all laboratory personnel while they collect and handle hazardous wastes. The handling of hazardous wastes can present a physical and health hazard to laboratory workers in clinical, industrial and academic laboratories. This course will provide guidance on good work practices in the handling of the various wastes streams generated in a R & D laboratory. | 1 | Intermediate |
| Raceways | This course is designed to familiarize participants with various types of raceways used to house electrical wiring. After completing this course, participants should be able to describe various types of raceways, including conduit, wireways, and cable trays. They should also be able to describe procedures for installing raceways in various types of environments. | 2 | Intermediate |
| Radiation Safety | The myths surrounding radiation exposure may be great for a Hollywood screenplay, but they won't help you work safely around radiation at your facility. Use this radiation safety course to learn about ionizing and non-ionizing radiation, gamma rays, isotope encapsulation, radiation-based sensor usage, radiation strength, and exposure minimization. We're sure you'll find our radiation course a valuable asset to your safety program! | 0.25 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
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| Radiofrequency (RF) Radiation Hazard Prevention | Radiofrequency (RF) radiation is the transmission of energy by electromagnetic radio waves or microwaves. You can't see it, smell it, hear it, or touch it, but the more you know about RF radiation, the better you will be at managing operations that produce it, and reducing the risks associated with it. Low levels of exposure to RF radiation have not been shown to be harmful, but prolonged exposure to very high levels of RF radiation can burn human tissue. No links have been proven between exposure to RF radiation and more severe health effects, like cancer or reproductive defects. Telecommunication and radar transmitters can produce high-intensity RF radiation environments that are potentially hazardous to anyone operating and maintaining this equipment. This course is designed to provide a general overview and understanding of the hazards associated with radiofrequency radiation. | 0.66 | Intermediate |
| RCRA - Emergencies, Inspections, and Training | The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. The goal of the emergency preparedness and prevention standards is to minimize the potential of a hazardous waste release and the resulting affects to human health and the environment. This course covers the required equipment needed for emergency preparedness, contingency plans, emergency procedures, inspection requirements, frequency, and logs, as well as personal training requirements and documentation. | 0.5 | Intermediate |
| RCRA - Generator, Container, and Tank Requirements | The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. This course covers the classifications of generators and their regulatory requirements, waste minimization, container management requirements, hazardous waste tanks, and air emission standards and controls. | 0.5 | Intermediate |
| RCRA - Introduction | The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage both hazardous and non-hazardous wastes to protect human health and the environment. RCRA subtitle C regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. This course covers hazardous waste identification, hazardous waste lists, codes, and characteristics, and the mixture rule. | 0.5 | Intermediate |
| RCRA - Preparing for Transportation, Manifesting, and LDR | The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. Once a generator has accumulated hazardous waste, it needs to be treated and disposed of. This often requires transporting the waste off-site to a treatment or disposal facility. A hazardous waste generator's responsibility is to correctly classify, package, and label the hazardous waste so it can be easily identified and appropriately handled by the transporter, and delivered to the treatment, storage, or disposal facility (TSDF). This course covers preparation steps for transportation, hazardous waste training requirements, hazardous waste manifest, land disposal restrictions (LDR), and alternative treatment standards. | 0.5 | Intermediate |
| RCRA - Special Wastes and Other Requirements | "The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Some hazardous wastes can be safely recycled. Recycling is an excellent way to manage hazardous waste if it can be done legitimately because recycling can avoid environmental hazards and protect natural resources. Most hazardous waste that is recycled is still subject to the full hazardous waste regulations, but some materials are exempt or subject to special regulations. Recycling facilities are not subject to hazardous waste regulations except when storing in containers or tanks prior to recycling. Recycled materials fall into a special category of waste. The regulations for recycling hazardous waste depend on the material and the recycling process." | 0.5 | Intermediate |
| Reading Electrical Diagrams, Part 1 | Electrical diagrams are drawings in which lines, symbols, and letter and number combinations are used to represent electrical circuits. In some plants, electrical diagrams may also be called prints, or blueprints. No matter what they are called, however, these drawings are valuable tools for anyone involved in making new electrical installations, locating electrical problems, or modifying existing circuits. There are many different types of electrical diagrams. Each type is drawn differently to provide different information. The four types of electrical diagrams covered in this course are block diagrams, single-line diagrams, schematic diagrams, and wiring diagrams. | 1 | Intermediate |
| Reading Electrical Diagrams, Part 2 | A great deal of electrical maintenance work depends on the ability of maintenance electricians to read and understand electrical diagrams. This course focuses on connection diagrams, interconnection diagrams, raceway diagrams, and logic diagrams. | 1 | Intermediate |
| Reciprocating Compressors, Part 1 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Reciprocating Compressors, Part 2 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial | In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness. | 1 | Fundamental |
| Refrigerant Management | Did you know many refrigerants are harmful to human health and/or the environment? In air conditioning and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. This interactive online course covers how to execute a refrigerant management program to be compliant with AHJ requirements, identifies EPA Regulations, and describe record keeping requirements. | 0.5 | Fundamental |
| Refrigerant Safety and Handling | In air conditioning (AC) and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. Refrigerants must be handled and used carefully as many of them present hazards to the environment and human health. This interactive online course discusses safe methods of working with refrigerants and refrigeration systems. | 0.5 | Intermediate |
| Refrigeration - Compressors, Valves and Piping | The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature. | 0.5 | Intermediate |

VectorSolutions™

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
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| Refrigeration - Refrigerant Properties | Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Selection | Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems. | 0.25 | Intermediate |
| Refrigeration - System Components | There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes. | 0.25 | Intermediate |
| Refrigeration - System Troubleshooting | Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance. | 0.25 | Intermediate |
| Refrigeration - Vapor-Compression Cycle | The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage. | 0.25 | Intermediate |
| Refrigeration Basics | The refrigeration cycle is used in many different applications to transfer heat from one fluid to another. One common application is to provide cooling in HVAC systems. This interactive online course discusses the theory, equipment, and processes related to the vapor-compression refrigeration cycle. | 0.5 | Fundamental |
| Refrigeration Components | "In the vapor-compression refrigeration cycle, a "refrigerant" alternately absorbs and rejects heat as it circulates through four components - an evaporator, compressor, condenser, and metering device - changing pressure, temperature, and phases along the way.<br>This interactive online course discusses different types of refrigeration systems and their components. It also discusses metering devices, compressors, and non-condensable gases." | 0.5 | Fundamental |
| Refrigeration Theory | Did you know the most common method of refrigeration is the vapor-compression refrigeration cycle? Refrigeration systems are used in many different applications to transfer heat from fluid in one area to fluid in another area, where the term "fluid" can refer to a liquid or gas. This interactive online course covers the three laws of thermodynamics, the operation of the four components of a basic refrigeration system, thermal energy transfer, and the maintenance procedures to maintain equipment efficiency. | 0.5 | Fundamental |
| Rehabilitation of Water Distribution Systems: Current Technologies | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the most current technologies to rehabilitate water distribution systems. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to identify technologies that are used to repair, rehabilitate and replace aging water distribution systems. | 1 | Advanced |
| Rehabilitation of Water Distribution Systems: Designing Renewal Projects | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through some of the key technical guidelines and standards for designing rehabilitation projects within the US. Some of these guidelines include AWWA, ANSI, ASTM and ASME standards. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to determine applicable design and QA/QC guidelines for common water distribution rehabilitation methods. | 1 | Advanced |
| Rehabilitation of Water Distribution Systems: Selecting Rehab Methods | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the overall items that need to be considered when selecting a method to rehabilitate a water distribution system. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to select applicable technologies to be used to repair, rehabilitate and replace aging water distribution systems. | 1 | Advanced |
| Reliability Centered Maintenance | Do you know the difference between preventative maintenance and predictive maintenance? There are different maintenance requirements for each asset. For example, some components fail consistently at a certain age, while others can be used indefinitely if properly maintained. Reliability-centered maintenance (RCM) involves establishing and maintaining an asset-specific maintenance plan to ensure that all equipment functions as designed, with good reliability and availability, and at the lowest possible cost. In this interactive online course, we will describe the principles of reliability-centered maintenance, differentiate between the different modes of maintenance, and describe analysis methods used in developing effective maintenance plans. | 0.5 | Fundamental |
| Reliability Engineering Essentials | This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world. | 1 | Intermediate |
| Reliability Essentials for Operators and Technicians | This course is intended to present the essentials of Reliability. Operators and technicians will be able to apply basic concepts related to reliability to work on system improvement, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but simple probability solutions, as they are found in the real world. | 0.75 | Intermediate |
| Resistors | This course introduces participants to the function and atomic makeup of resistors, common materials used to construct resistors, and the typical styles used in everyday applications. In addition, participants will learn about three ways to rate resistors as well as the different ways to mark resistors. | 1 | Intermediate |
| Resolving Conflicts: 01 - Characterizing Conflict | Discover the four stages of conflict and the impact that unresolved conflict can have on an organization. | 0.25 | Intermediate |
| Resolving Conflicts: 02-Know Your Conflict Behavior | Establish a collaborative conflict resolution process to encourage team member collaboration in conflict situations. | 1 | Intermediate |
| Resolving Conflicts: 03-Identifying Conflict Behaviors | Identify the conflict behavior exhibited in order to properly handle the conflict. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
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| Resolving Conflicts: 04-Your Path to Resolving Conflicts | Learn and apply the five-step process for resolving a conflict between two or more team members. | 1 | Intermediate |
| Resolving Conflicts: 05-Mastering Resolving Conflicts | Practice Resolving Conflicts in a full scenario situation. | 1 | Intermediate |
| Resolving Conflicts: 06-Resolving Conflicts Health Check | Test your ability to apply Resolving Conflicts concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Respirator Basics | Respirators are important and commonly used in the workplace. This course explains what a respirator is and the types of hazards for which they can provide protection. It also explains the difference between air-supplying and air-purifying respirators as well as tight-fitting and loose-fitting respirators. The use of respirators within the hierarchy of controls is covered, as are assigned protection factor (APF), selection criteria, and cleaning, maintaining, inspecting, and storing procedures. Finally, training and personal responsibility are covered. | 0.47 | Intermediate |
| Respirator Medical Evaluation and Fit Testing | Before workers wear a respirator on the job, they must undergo a medical evaluation to see if they can wear the particular type of respirator safely. The medical evaluation looks for medical issues that might create a problem for the worker. In addition, after the medical evaluation, the worker should undergo a fit test to make sure the respirator fits properly and creates a tight seal. This course explains the medical evaluation and fit test in more detail. | 0.4 | Intermediate |
| Respirators - Voluntary Use | A respirator is a piece of personal protective equipment (PPE) that protects its user from inhaling hazardous substances in the form of dusts, mists, fumes, gases, or vapors. There are many different types of respirators; each type protects its user from a specific airborne hazard. Voluntary use situations occur when workers use respirators even when they are not required. When employers allow the "voluntary use" of respirators, there are several requirements they must fulfill. | 0.25 | Intermediate |
| Rewarding Peak Performers | Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the businesses bottom line. | 1.5 | Intermediate |
| Rigging, Part 1 | The purpose of this course is to teach the fundamentals of overhead rigging. The topics covered include three basic elements of safe rigging, rope, knots and knot tying, use of a handline, and use of block and tackle. The course also introduces approaches to performing some basic rigging tasks. At the conclusion of this course, participants should have a basic understanding of how to plan a rigging job, how to inspect the equipment used on a job, how to tie basic knots commonly used in rigging, how to hang and use a handline, and how to hang and use a block and tackle. Participants should also be able to calculate the mechanical advantage of a block and tackle and identify the basic parts of a rope. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging, Part 2 | The purpose of this course is to teach rigging skills required for tasks often performed in line work. The course demonstrates how to rig to lift a conductor and how to rig to take the strain from a conductor at a dead end. Rigging to lift and move a piece of equipment and the use of a gin pole are also demonstrated. Safety is emphasized throughout the course. At the conclusion of this course, participants should have a basic understanding of how to rig to lift a conductor, how to rig to take strain at a dead end, how to lift and move a load, and how to use a gin pole. They should understand how to maintain safe working clearances around energized lines and how to avoid overloading rigging equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging: Basic Lifting | This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability. | 2 | Intermediate |
| Rigging: Ladders and Scaffolds | This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds. | 2 | Intermediate |
| Rolling Contact Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Rolling Contact Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Rules for Discussing Politics at Work | It's natural to chat with colleagues at work and there's not necessarily anything wrong with a little back-and-forth about political issues. However, those conversations have the potential to go wrong pretty quickly if everyone does not stick to some basic standards. This lesson provides five rules to help keep things civil when having political discussions. These rules can help your team keep from creating an uncomfortable atmosphere when the topic of politics comes up. | 0.2 | Intermediate |
| Safe Backing of Tractor Trailer Rigs | Backing a single trailer or a set of doubles with a semi tractor is the most dangerous, intricate and time-consuming set of maneuvers a big rig driver has to master. No matter how many miles you drive forward, not one of those miles will help when it comes to backing. This program trains drivers on the mechanics and techniques required in backing large vehicles such as tractor trailers, and discusses using the _cone of visibility_ to insure safe backing. | 0.25 | Fundamental |
| Safe Food Handling | According to the CDC, every year in the US, 48 million people are infected with a food borne illness, 128,000 are hospitalized and 3,000 people die. Nobody wants this to happen; and, with proper training in safe food handling, it doesn't have to. Food borne illnesses can be prevented by insuring your employees are properly trained on basic food safety procedures. This program is targeted at everyone involved in the preparation, handling or service of food and outlines what these basic procedures are. It can assist employers on documenting employee training if required by their local health agency.Topics covered also include:Food-borne illnessesTime and temperature controlPersonal hygienePreventing contaminationCleaning and sanitizing equipment and utensilsPreventing cross contaminationHousekeeping and maintenance. | 0.25 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
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| Safe Work Permits | This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc. | 1 | Intermediate |
| Safety and Health - Advanced | This course covers more advanced guidelines and best practices for safety in a variety of industrial workplaces. With safety topics including working around mobile equipment, hazardous chemicals, and moving machine parts, this course provides advanced concepts critical to establishing safe work habits for yourself and your team. | 0.25 | Intermediate |
| Safety and Health - Basic | This course covers basic guidelines and best practices for safety in a variety of industrial workplaces. From identifying and avoiding common workplace hazards to housekeeping and incident reporting, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team. | 0.25 | Intermediate |
| Safety Management | Managing safety is not just something that happens - it should be managed just as quality, productivity and customer-relations are managed. Senior management establishes the overall culture at every facility. This course will review the four major elements to achieve a world class safety and health program at your facility. | 1 | Intermediate |
| Safety Management: Barrier Analysis | "Every organization has policies regarding defenses, or barriers, to control hazardous energy and prevent it from coming into contact with people, or objects. For example, machine guarding keeps people from contacting moving equipment, and lockout/tagout procedures provide barriers to prevent equipment from moving when its being worked on. Accidents occur when barriers fail. Barrier analysis is used to determine which barriers failed and why, so it is an effective root cause analysis tool for accidents and other incidents. This module describes how to perform a barrier analysis." | 0.25 | Intermediate |
| Safety Management: Change Analysis | Change analysis, also known as Is/Is Not Analysis or KT (Kepner Tregoe) Analytical troubleshooting, is a problem solving method that involves comparing a process that has failed or is performing poorly to one that is operating correctly. This module describes how to conduct a change analysis. | 0.25 | Intermediate |
| Safety Management: Emergency Action Plans | This course covers the importance of creating emergency action plans in preparation for unexpected emergencies, accidents, and evacuations at industrial workplaces. Based on OSHA standards and recognized industry best practices, this course is intended as an introduction or refresher for general industry workers and those responsible for developing an emergency action plan. | 0.25 | Intermediate |
| Safety Management: Events and Causal Factors Analysis | Accidents and major equipment failures are usually the result of several different failures or human errors occurring at the same time. This can make it difficult to analyze information and find root causes. A method such as events and causal factors analysis is useful because it organizes event data on a timeline, which provides a visual summary of an incident and makes it easy to identify relationships between relevant events and their causal factors. | 0.25 | Intermediate |
| Safety Management: Floor and Walkway Safety and Auditing | Slips, trips, and falls (or STFs) are a leading cause of work-related injuries, including sprains, strains, fractures, contusions, and abrasions. STFs also account for 15% of all accidental deaths; second only to motorized vehicles as a cause of workplace fatalities. STFs also account for ~15% of workplace fatalities, second only to those related to motorized vehicles. While STFs can occur on level surfaces and at elevated heights, this course focuses only on STFs which occur on level surfaces. | 0.5 | Intermediate |
| Safety Management: Hot Work Permit | This course covers the use of hot work permits at general industry facilities. A hot work permit refers to an employers written authorization to perform hot work operations. There is no one standard for Hot Work Permits; different facilities will have different forms and different procedures. This course serves as an introduction to the common protocols in place at most workplaces that are meant to ensure safe conditions before hot work can begin. | 0.25 | Intermediate |
| Safety Management: Incident Investigation | As long as people work, there will be safety-related incidents and near misses. But those incidents can be used to make the workplace safer if they are investigated, analyzed, and corrected to prevent their recurrence. This course discusses reasons for incident investigations, the phases of an incident investigation, team leader responsibilities, and who comprises the investigation team. It then provides information on best practices for interviewing witnesses, determining the root cause of an incident, and corrective and follow-up actions. | 0.5 | Intermediate |
| Safety Management: Industrial Hygiene Basics | Industrial hygiene (or occupational hygiene, outside of the U.S.) is the discipline of evaluating and controlling workplace hazards in order to protect the health and well being of workers and the community. This involves monitoring of work environments, evaluating exposures to hazards, and employing controls to prevent or minimize exposures and their effects. This course describes the job responsibilities of an industrial hygienist, discusses common workplace hazards, and details measures that can be used to control these hazards. | 0.5 | Intermediate |
| Safety Management: Medical and Exposure Records Access | The Occupational Safety and Health Administration (OSHA) requires employers to provide a safe workplace for their employees. To ensure this, OSHA maintains several standards that describe employee rights for a hazard-free workplace. The Access to Medical and Exposure Records Standard (29 CFR 1910.1020) describes employees rights to access their medical records and information about exposure to toxic substances and harmful physical agents. This module describes employees right of access, what types of records they have access to, and record retention requirements for employers. | 0.25 | Intermediate |
| Safety Management: Near Miss Best Practices | The Occupational Safety and Health Administration (OSHA) has described near misses as incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred. It has been shown that injury and damage-producing events are frequently preceded by warning signs or near miss incidents. For this reason, a program designed to identify, record, and address near miss incidents will improve worker safety and the safety culture of an organization. | 0.25 | Intermediate |
| Safety Management: OSHA Record keeping | In the workplace, employees may be confronted with a variety of injury and illness cases. When these occur, employees will need to determine or help determine whether or not a case should be recorded on the OSHA 300 Log for their facility. Injury records are kept to help analyze injury causes, identify potential trends, and prevent future occurrences. Failure to properly record an injury or illness may also result in an OSHA violation and citation. Thus, it is extremely important to know and understand the OSHA rules and requirements for recording an injury or illness. This course will review the criteria for recording injuries and illnesses for OSHA purposes. | 0.75 | Intermediate |
| Safety Management: Root Cause Analysis | How many times have you thought a problem was "fixed" only to have it happen again? This happens when only the symptoms, not the underlying, or root, causes, are addressed. Root cause analysis is a generic term used to describe various methods that can be used to find and eliminate root causes so problems do not recur. This module will describe the steps involved in a root cause analysis and some tools and methods that can be used. | 0.25 | Intermediate |
| Safety Management: Root Causes of Human Behavior | Human errors occur quite frequently. To prevent recurrence of the same errors, careful analysis is required to identify and eliminate the root causes of those errors. However, determining the root causes of incidents caused by worker behaviors is typically more difficult than finding the root causes of mechanical failures. This module will describe some different models and analysis methods that can help identify root causes of human errors and behavior problems. | 0.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
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| Safety Management: Safety Inspections and Observations | Accidents are caused by unsafe workplace conditions or unsafe behaviors. Inspections and observations allow you to be proactive by evaluating how safe your workplace is instead of waiting until someone gets hurt. This course will provide an overview and general guidelines for performing safety inspections and observations. | 0.25 | Intermediate |
| Safety Management: Slip, Trip, and Fall Prevention Inspections | Slips, trips, and falls (STFs) are a leading cause of work-related injuries, and the second leading cause of workplace fatalities, after motorized vehicle incidents. A comprehensive floor and walkway safety program can greatly reduce STF hazards and incidents. Among other things, this program should include floor and walkway audits and STF prevention inspections performed by trained and qualified persons. STF prevention inspections should include annual inspections, routine safety inspections, and change analyses. | 0.5 | Intermediate |
| Safety Management: Task Analysis | When an incident, or problem, appears to have resulted from a human error during the execution of a task, or procedure, a task analysis should be performed. The objective of a task analysis is to determine how a task was actually performed, compare that to how it should have been performed, and identify corrective actions that will increase the likelihood that it will be performed correctly in the future. This module describes the steps involved and how to perform a task analysis. | 0.25 | Intermediate |
| Safety Showers and Eye Washes | Chemicals are frequently used and stored in industrial environments. It is imperative to handle them with care and wear appropriate PPE to avoid exposure. If an accident does occur, however, safety showers and eye washes can be used to cleanse the affected area and decrease the extent of injury. Knowing use procedures, maintenance practices, and the locations of safety showers and eye washes will reduce the risk of serious injury and lead to safer conditions in the workplace. | 0.5 | Intermediate |
| Safety Valves | "Safety valves are commonly used in gas and steam systems to relieve excess pressure before it can cause injuries or equipment damage. Safety valves open quickly to release large volumes of gas or steam. This course is divided into two sections. Section 1: Types of Safety Valves, covers the concept of pressure and how it is measured and explores methods of relieving excess pressure through use of a rupture disc systems, relief valve systems, and safety valves. Section 2: Safety Valve Maintenance describes troubleshooting and basic maintenance procedures for a typical safety valve. The section consists of three parts: External Inspection Disassembly and Inspection Reassembly and Testing" | 1 | Intermediate |
| Safety: Electrical Part 1 - Fundamentals, Materials & Equipment Grounding | "Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at:<br>Fundamentals of electricity & associated hazardsUsing proper materials and componentsEquipment grounding" | 2 | Intermediate |
| Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) | "This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at:<br>Hazardous locationsSafe working clearancesSafety practices " | 2 | Intermediate |
| Safety: Working with Chemicals | This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Intermediate |
| Sales 101: Appointment Making | "The first step in being a successful salesperson is to have someone to sell to. In this course, professional Sales Trainer Marisa Pensa walks you through the basics of getting sales appointments, including:<br>What to say (on the phone or in person) What to NOT say (on the phone or in person) How to make effective phone calls Knowing your numbers" | 1.25 | Fundamental |
| Salesforce Essentials | "Everything you need to know to start using Salesforce today.<br>If your company has started using Salesforce.com and you need to get up to speed, this course is for you. In this course, Certified Salesforce Administrator, Mia Huffman, walks you step-by-step through using Salesforce for the first time. By the end of this course, you will be able to start using Salesforce to manage leads, accounts, contacts, and opportunities and track your sales activity against these objects." | 1.25 | Fundamental |
| Saving Time in Outlook | "From timewaster to productivity booster: change the way you use Microsoft Outlook. Outlook is packed with great tools but there a few that can make a tremendous difference in your efficiency. With the automating features, tasks that you do on a regular basis that can take time will become simpler and faster. Topics covered include:<br>Using Quick Steps Creating reusable text, searches, and rules to automate things you do often.Using color, rules, and the task list to highlight and make email easier to manage and organize This course is the first step in Mastering Outlook. You will be sure to want to find out more about how Outlook can help you find more hours in your week!" | 0.5 | Fundamental |
| Seals: Gaskets and Packing | The purpose of this course is to examine some ways that leaks in fluid systems are controlled by the use of gaskets, packing, and mechanical seals. At the completion of this course, participants will be able to describe the components and procedures involved in working with gaskets, packing, and mechanical seals. | 1 | Intermediate |
| Security Begins At The Front Desk | Hotel Security requires the participation and cooperation of everyone on Staff, not limited to Security Personnel. Front Desk personnel are a pivotal part of the Security of your property. Front Desk personnel are often the first line of defense and have perhaps the most visible role in spotting and preventing potential threats, and reporting suspicious activity. The Security of any property is at higher risk without a vigilant Front Desk Staff. This program trains your Front Desk Associates, Bell Staff or anyone working in, around or near your properties lobby. Topics covered also include: Protecting Guest Privacy, Human Trafficking, Emergency Response, Key Control | 0.1 | Fundamental |
| Selection, Specification and Installation of Safety and Security Barriers and Bollards | "The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance." | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Self-checking (STAR) | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will learn to use STAR, a self-checking human performance tool, to enhance your ability to minimize errors, reduce the frequency of events, and reduce the severity of events.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Series Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. In this course, you will learn about the fundamentals of series circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Series-Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. Components connected in parallel are connected so the same voltage is applied to each component. In this course, you will learn about the fundamentals of series and parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Set-Up of Engineering Controls for Mold Remediation Projects | This course will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. | 1 | Fundamental |
| Seven Basic Quality Tools | The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses. | 0.25 | Intermediate |
| Sexual Harassment Awareness | In 2010, more than 11,000 sexual harassment claims were filed with the United States Equal Employment Opportunity Commission (EEOC). The EEOC states that it is illegal to harass a person (an applicant or an employee) because of that persons sex. Sexual harassment can include unwelcome sexual advances, requests for sexual favors, and other verbal or physical harassment of a sexual nature. This course defines the term sexual harassment and explains the different forms it can take. It also delves into the negative effects sexual harassment has on both an individual and on the workplace as a whole, and suggests appropriate responses to sexual harassment. | 0.25 | Intermediate |
| Shaft Alignment, Part 1 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will the cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment, Part 2 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment: Reverse Dial and Laser | This course is designed to familiarize participants with equipment and procedures for aligning shafts using the reverse dial method and using a laser system. After completing this course, participants should be able to prepare and set up equipment for a reverse dial alignment and for laser-based alignment. They should also be able to measure shaft misalignment and determine how the misalignment should be corrected. Finally, participants should be able to correct shaft misalignment so that the alignment is within specified tolerances. | 2 | Intermediate |
| Shaft Alignment: Rim and Face | This course is designed to familiarize participants with the basic principles associated with measuring and correcting shaft misalignment using the rim and face method. After completing this course, participants should be able to describe the basic types of misalignment, describe general preparations for a rim and face shaft alignment procedure, and explain how to use the rim and face shaft alignment procedure. They should also be able to explain how to use the rim and face method to measure and correct misalignment on horizontally mounted equipment and on vertically mounted equipment. | 2 | Intermediate |
| SharePoint for Site Owners | "Learn to Create and Manage Your Teams SharePoint Site in Less than 90 Minutes<br>Now more than ever, SharePoint is a powerful and user-friendly tool for creating a common place where your team can share documents, collect data, and collaborate. In this course, you'll quickly learn how to create your own site and invite your team members. SharePoint expert, Kat Snizaski, walks you step-by-step through creating a parent site and adding subsites for multiple teams. You'll learn how to create and manage document libraries and custom lists that enable collaboration. You'll also learn how to assign user permissions and get your team rolling on their new collaboration platform!" | 1.5 | Fundamental |
| Sharepoint Online Essentials | "Share Files and Post Information For Your Team with SharePoint Online<br>SharePoint is the behind-the-scenes backbone of Office 365, but the SharePoint Online app has its own benefits. In this course, IT guru Chip Reaves demonstrates how to use SharePoint Online to create shared resources, including a shared document library, and to create internal websites to share information with your team." | 0.75 | Fundamental |
| Sharing the Road with Pedestrians and Cyclists | Unless you are driving on an interstate, it is possible you will be sharing the road with other types of road users. For example, you may encounter pedestrians and bicyclists while driving in urban, suburban, or rural areas. These situations are dangerous because collisions between vehicles and cyclists or pedestrians often result in serious injuries or fatalities. This course will identify clues that cyclists and pedestrians may become hazards and strategies to prevent collisions with cyclists or pedestrians. | 0.25 | Intermediate |
| Shop Safety | The shop. A lot of different things go on in here. What DOESN'T go on in here? It's a busy place with a variety of functions, tools, personnel and responsibilities. Perhaps the most important responsibility is safety....your safety and the safety of those working around you.Topics covered also include:Fire PreventionElectrical SafetyCompressed GasRespiratory HazardsSafe LiftingChemicalsSlips and Falls and Injury Reporting | 0.1 | Fundamental |
| Shoulder Injury Prevention | In the U.S., shoulder injuries result in more days away from work than any other work-related injury. Many activities including reaching and lifting can strain the body and cause injuries to the back, neck, shoulders, and limbs. To prevent shoulder injuries, make sure equipment and controls are maintained and function correctly, follow safe work practices, use required PPE, don't overexert, maintain good posture, and stretch and take breaks regularly. It is also important to exercise and take care of yourself during non-work hours. | 0.5 | Intermediate |
| Single-Phase AC Induction Motor Maintenance | Most single-phase alternating current (AC) motors are small-horsepower motors designed to operate on standard single-phase AC current. They are found in a number of home and industrial tools, including vacuum cleaners, can openers, power saws, drills, and fans. Electrical maintenance personnel are responsible for keeping the single-phase motors in their plant in top operating condition and for repairing them correctly and quickly if the need arises. This course explains how single-phase AC induction motors operate and how they are classified. It also covers some common procedures for testing and maintaining them. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Site Utility Design: Commercial Buildings | This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Skype for Business Essentials | Chat, Call, And Videoconference With Ease Using Microsoft's Business Communication App! Skype for Business is an incredibly powerful communications tool, used for everything from simple chat conversations to webinars for 10,000 people, and can even replace a business's phone system. | 0.3 | Fundamental |
| Sliding Surface Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Sliding Surface Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Slips, Trips, and Falls | Falling at work may not seem very dangerous, but falls are the leading cause of workplace injuries. They commonly cause cuts, bruises, broken bones, back injuries, sprains, and strains. Hazards that cause slips, trips, and falls can be controlled and eliminated if they are identified, reported, and corrected. This course describes common causes of slips, trips, and falls, how they can be prevented, and first aid procedures for fall injuries. | 0.48 | Intermediate |
| Smart Business Writing: 4 Stages to Writing Your Best | "Some people thinks that in the grand sceheme of things, excellence in writing isn't all that important as long as you get the General idea accross. But the sentence above is a perfect illustration of why that simply isn't true: Did it make you wary to see that the first sentence of a course intended to teach you writing tips was full of errors? Good writing gives you and your ideas authority, visibility, and stature. Bad writing, on the other hand, can make readers question your credibility and/or expertise, can be costly to a business, and can even damage the career of the writer. Inefficient, unclear, misleading, irrelevant, sloppy or deceptive written communication costs companies across the board billions each year. This course will help you improve your skills and avoid careless errors by focusing on four stages of writing: preparing, planning, drafting, and editing (revising and finalizing)." | 1 | Intermediate |
| Smart Business Writing: Emails & Technical Proposals (RV-PGM139) | "This interactive online course is presented in two modules: How to Write Powerful & Persuasive Emails, Tackling the Technical Proposal. This course covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. The second lesson discusses writing business and technical proposals and focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read." | 1 | Intermediate |
| Smart Business Writing: How to Write Powerful & Persuasive Emails | "Writing an email is the same as any other form of correspondence, only faster and a lot less formal, right? Wrong. Almost every professional today is faced with the seemingly simple task of writing emails but there are specific considerations that apply to email that we should always consider before we hit "Send." This 1/2-hour online interactive course from SmartTeam teaches you the specifics for using electronic mail to focus and present information effectively. It covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. You'll also learn what the differences should be between composing an email that "tells" information and email that "sells"; how to use the Pyramid writing plan for maximum efficacy in getting your message across, and perhaps the single most paramount rule in email writing: Pause before you hit Send!" | 0.5 | Intermediate |
| Smart Business Writing: Short, Sweet and To-the-Point Reports | If the skills you'd acquired by the time you wrote your last book report for school aren't cutting it for you in the business world, this course can teach you what you need to know. Almost every professional has to write a short report at some point in his or her career, and despite the fact that it doesn't have to be "long," it can still be daunting - especially if you don't like writing. This interactive online course will teach you to use the simple and extremely effective Pyramid method of writing to create the most common types of reports professionals will be faced with in their careers. | 1 | Intermediate |
| Smart Business Writing: Tackling the Technical Proposal | "Proposals are an integral part of the professional world. Proposal topics can range from a request for more department funding to a plan for redesigning a highway. Regardless of the subject, proposals are intended to persuade. A poorly written or dull document that doesn't present the critical components in logical order can mean your presentation or request is brushed aside or not taken seriously. This 1/2-hour interactive online course on writing business and technical proposals focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. Once you have successfully completed this SmartTeam course, you will have the tools to significantly improve your proposal writing skills and help ensure the success of your company." | 0.5 | Intermediate |
| Smart Business Writing: Writing Effective Emails | "In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success.<br>This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language." | 0.5 | Intermediate |
| Smart Certificate: A Comprehensive Sales Program | "In this comprehensive sales certificate you'll get everything you need so you can start making sales fast. You'll learn how to approach cold calls, create winning phone scripts, how to identify qualified prospects and most importantly how to close the sale. Additionally you'll get a course on B2B sales as well as a course on the complete sales cycle. Whether you are a seasoned pro or a budding sales superstar this comprehensive sales certificate has everything you need to start selling today. The courses contained in the certificate are: Smart Sales 1: Understanding the Psychology of Sales, Smart Sales 2: Naming the Decision Maker & Setting Appointments, Smart Sales 3: Holding Appointments & Advancing the Sale, Smart Sales 4: Dealing with Objections & Closing the Sale, Smart Sales 5: Business-to-Business Sales, Smart Sales 6: The Sales Cycle" | 3 | Fundamental |
| Smart Customer Service 1: Courtesies, Attitude, and Ethics | You are the face of your business; therefore, your company depends on you to present yourself well at all times. This interactive online course is designed to help you understand how to do that. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. | 0.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Customer Service 2: Listening for Understanding | As a frontline employee you are the primary source of communication between your company and its customers. You can improve your ability to interact well by developing listening skills. When you hear and interpret a message correctly, you will be able to understand your customers' requests and that is the key to handling each and every customer successfully. This interactive online course is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone. | 0.5 | Intermediate |
| Smart Customer Service 3: Effective Verbal and Nonverbal Communication | Communication is the give and take exchange of information; therefore, effective verbal and nonverbal skills are crucial to understanding your customers completely. In the previous course in this series, you learned about listening for understanding, or the taking of information. In this course you will learn how to give information effectively by speaking well and using your nonverbal signals to enhance your message. This interactive online course is designed to help you improve your communication skills when you are the sender of the message, whether you handle customers face-to-face or by telephone. | 1 | Intermediate |
| Smart Customer Service 4: 3 Steps to Successful Customer Interaction | In this lesson you will learn how to combine the basics of customer service that will help you interact well with your customers: how to present yourself well, listen for understanding, and communicate effectively to complete your customer interactions successfully. Every customer interaction involves three important steps that need to be completed in order to satisfy customers. This interactive online course is designed to help you to fully understand these three steps so that you will complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options. | 0.5 | Intermediate |
| Smart Customer Service 5: Handling Customer Complaints | This interactive online course is designed to help you understand why customers may complain, uncovers the special skills needed for handling customer complaints, and teaches an easy to learn step-by-step method for handling these types of customer contacts. At the end of this course you will apply the skills to your work environment to successfully handle any customer in any situation. | 1 | Intermediate |
| Smart Customer Service: Courtesies, Attitude, Ethics and Listening for Understanding | This two part course discusses Smart Customer Service. Part One is designed to help you understand how to present yourself well at all times. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. Part Two is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone. | 1 | Fundamental |
| Smart Customer Service: Courtesies, Listening for Understanding for Successful Customer Interaction (RV-PGM140) | This interactive online course is presented in three modules: Courtesies, Attitude, and Ethics Listening for Understanding 3 Steps to Successful Customer InteractionYou will learn how to combine the basics of customer service, how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. It will also help you improve your listening skills, and teach you to complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options. | 1 | Intermediate |
| Smart Finances: Creating a Budget that Works for You | "A budget can be a very effective financial tool. If used correctly, it can help you determine where your finances are, and forecast where they need to be. With the economy chugging slowly toward recovery, it's important to get a handle on your spending so you can make the best choices when allocating your money. A good budget plan is one that makes sense to you, and one that YOU KNOW you will be able to maintain. This interactive online course will help you take a step towards doing just that. By discussing best practice methods and methodologies that have proven fruitful for many formerly harried individuals, you will learn tested strategies for establishing and maintaining a budget that works for you." | 1 | Intermediate |
| Smart Health: Best Practices to Help You Quit Smoking | "According to the Centers for Disease Control and Prevention, cigarette smoking accounts for approximately 443,000 deaths every year in the United States—roughly one out of every five people. It is the leading cause of preventable death among Americans, yet an estimated 46 million U.S. adults continue to smoke, and an alarming number of young adults and teens are following suit. Quitting smoking is the single best thing you can do to protect and improve your health and the health of those around you, and those who are able to quit greatly reduce their risk for heart disease, stroke, cancer and other tobacco-related health illnesses. Although quitting isn't easy, it is possible with the right combination of knowledge, support, and aids/medications. This interactive online course provides the latest in evidence-based research on proven practices and coping strategies to help you quit smoking. All the information is presented in an easy-to-follow format that will walk you through the key elements you need to quit smoking forever." | 3 | Intermediate |
| Smart Health: Child Nutrition - How to Avoid/Prevent Childhood Obesity | Childhood obesity is alive and real. In fact, it is triple the rate from just one generation ago. While there are several causes of obesity in today's youth, the possibilities for prevention are literally endless! By teaching your child how to make healthier food choices and encouraging active play (yes, play!), you can help him or her grow into a fit and healthy adult. What a gift! | 1 | Intermediate |
| Smart Health: Drinking Responsibly | Drinking responsibly has a number of benefits, such as stress reduction, enhanced mood and improved mental health, the experience of pleasure, increased creativity, social benefits, and positive effects on quality of life. Your ability to drink responsibly depends on genetics, age at which you started drinking, culture, family environment, and mental health. This interactive course provides you with tips for drinking responsibly, as well as what drinking responsibly involves, and does not involve.. | 1 | Intermediate |
| Smart Health: Eating Right | In a world of fad diets, quick fixes and fast food, eating right and staying healthy can be a real challenge. The goal of this course is to give you all the tools you need to get all the good nutrition your body requires to maintain a lifetime of health and wellness. If you want to shed unwanted pounds, you can use these guidelines to reduce your caloric intake, increase your activity and reduce your consumption of fat and sodium in the process. | 1 | Intermediate |
| Smart Health: HIPAA Privacy Standards for Everyone | "We all have personal health information, and many of us are responsible for the health and personal information of others. Most of us agree that information should be private and therefore, protected. The HIPAA Privacy Standards were created for that purpose. Criminal charges can be brought against anyone in healthcare who is not in compliance. You can be knowledgeable and better protected by being familiar with these standards.<br><br>This interactive course gives you definitions and ways to recognize non-compliance. We'll discuss how to protect private health information and we'll give you examples of situations you could face and how to handle them correctly." | 1 | Fundamental |
| Smart Health: Managing Your Cholesterol and Blood Pressure | Are you one of the 1 in 3 adults suffering from high blood pressure or high cholesterol? If left untreated, both can cause serious harm to your health—including heart disease and stroke! Did you know there are simple, painless steps you can put into practice today to improve your numbers? The power to achieve a healthier body is in your hands! | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Health: Physical Fitness - Choosing an Exercise Plan That's Right for You | Every time you turn around it seems that there is a new fad, diet, or piece of exercise equipment on the market. With so many things to choose from, how do you know where to begin? The goal of this course is to introduce you to the basics of exercise, and provide you with a program that will help you take that first step toward fitness. We will look at the physical and mental benefits of excise, and discuss how to create a successful exercise program that you can use to get started. | 1 | Intermediate |
| Smart Health: Proper Posture and Breathing | "Poor posture, typically defined as having excessive curvatures of the spine, slumped shoulders and a forward projecting chin, are common ailments in today's society. Improper posture inhibits proper breathing patterns by limiting the room the diaphragm has to push down into the abdomen to make room for the lungs.<br><br>And breathing is one of the basic requirements of life; it is the first thing we do when we are born and the last thing upon death. Each minute, the average person breathes 12 times, inhaling oxygen and exhaling carbon dioxide. These processes are controlled by the autonomic nervous system and unless you are actively listening to or watching for breathing, you are essentially unaware of it." | 1 | Intermediate |
| Smart Health: Sleeping - How to Ensure You Are Well-Rested & Energized | "Do you take sleep for granted? Many of us can fall asleep quickly anywhere while others struggle. If you want information about proven tools for getting the rest you need, this is the course that will supply your wish list. You will get foundational information, myth busters, and facts. You will also receive tools and methods from experts to use in your individualized solution for a good night's sleep." | 1 | Intermediate |
| Smart Health: Yoga & Meditation - Finding your Inner Chi | "Yoga is a form of exercise that can be used to reduce stress in our lives. Benefits include improving posture, learning better breathing and relaxation techniques, and balancing the ""Chi"" using exercise. In this course, you will learn ways of finding stillness, the 7 chakras, and the meditation techniques associated with each." | 1 | Intermediate |
| SMART Instrumentation in Biological and Chemical Treatment | What is SMART instrumentation? The definition and implementation of "SMART Instrumentation" has evolved over the past five or six decades to its present state where we can literally and figuratively put cruise control on a bicycle; however, it does not ride itself. Proper implementation of a monitoring and control scheme for even a very small system can generate terabytes of useful information per year, all of it meaningless unless correlated, analyzed, trended, structured, and most importantly, acted upon. In this interactive online course, we will discuss the quality and performance specifics, operational reliability, environmental safeguards, and safety risks for control and monitoring systems using SMART instrumentation. We will also cover the reduced costs that can be obtained using SMART instrumentation. | 1 | Intermediate |
| Smart Leadership: Leaders, Model the Way (RV-PGM141) | "This interactive online course is presented in two modules:<br>Smart Leadership: What Leaders Do Smart Leadership: Model the Way<br>Introducing the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage and uses actual case examples from real people who have achieved remarkable success. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you." | 3 | Intermediate |
| Smart Leadership: Leadership Qualities (PGM142) | This interactive online course is presented in two modules: Smart Leadership: Inspire a Shared Vision Smart Leadership: Encourage the Heart "Inspire a Shared Vision," will help you learn to communicate your vision clearly and enlist others in making this dream a reality. In "Encourage the Heart." you'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. | 3 | Intermediate |
| Smart Leadership: Part 1 - What Leaders Do | "<br>Extraordinary results can occur in an otherwise ordinary setting, and the objective of this course is to help you to create the conditions that lead to those results. Leadership development is ultimately self-development, and this series of SmartTeam courses will help you meet that daily challenge. Leadership is not the private reserve of a few charismatic men and women - it is a process that ordinary people use when they are bringing forth the best from themselves and others. This series will inspire you to create a workplace that rejoices in celebration and encourages the best efforts from everyone.<br>This interactive online course introduces the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage for the remaining courses in the series and uses actual case examples from real people who have achieved remarkable success. You'll also find out what four qualities - from among 225 traits - people consistently look for in a leader they would willingly follow. This course series is adapted from the extensively researched and highly respected book, The Leadership Challenge, by James Kouzes and Barry Posner. It is recommended that you take this course before attempting later courses in the series." | 1.5 | Intermediate |
| Smart Leadership: Part 2 - Model the Way | "What do Abraham Lincoln, Martin Luther King Jr., Susan B. Anthony, César Chávez, the Dalai Lama, Eleanor Roosevelt, Mother Teresa, and Archbishop Desmond Tutu have in common? They all have, or had, strong beliefs about matters of principle and an unwavering commitment to a clear set of values. They all are, or were, passionate about their causes. Another thing they have in common is that while each of these people may have quoted someone else from time to time, they are all people who are more often quoted themselves. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you. And people most admire those who best articulate the principles they believe in. You can begin to achieve these aims by exploring the first of the five practices of exemplary leadership: "Model the Way." This is the second in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |
| Smart Leadership: Part 3 - Inspire a Shared Vision | "When the byproducts of a Ben & Jerry's ice cream plant overloaded a local waste treatment plant and nearly had to shut down, administrative assistant Gail Mayville found an unorthodox solution that saved people's jobs, kept the plant open, and jump-started a new and rewarding career. What Gail and thousands of other leaders share is the characteristic of being forward-looking - of being concerned not just about today's problems but also about tomorrow's possibilities. They see something out ahead, vague as it might appear from a distance, and they imagine that extraordinary feats are possible and that the ordinary could be transformed into something noble. Find out how Gail solved the problem - and why leaders need to be able to look beyond the present moment to see an ideal version of the future. This SmartTeam course - which focuses on the third principle, "Inspire a Shared Vision," will help you learn to communicate your vision clearly and enlist others in making this dream a reality. This is the third in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Leadership: Part 4 - Challenge the Process | ""If you keep your eyes open and periodically actually shut your mouth, and you have the courage to turn the mirror around on yourself, it's amazing what you can learn and how you can change things." - Dick Nettell, corporate services executive for the Bank of America. The leaders whose stories we excerpt talk about times when they turned around losing operations, started up new plants, developed new products or services, installed untested procedures, renewed operations threatened with closing, or released the creative spirit trapped inside stifling bureaucratic systems. The personal-best leadership cases were about radical departures from the past, about doing things that had never been done before, about going to places not yet discovered. In many cases, the magnitude of results was in the hundreds of percent.<br>In this SmartTeam course, "Challenge the Process," you'll see how leaders understand that change is a constant, and proactive individuals seize the moment and use times of change to create something better than previously thought possible. This is the fourth in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 2 | Intermediate |
| Smart Leadership: Part 5 - Enable Others to Act | "In the thousands of cases the course authors studied, they did not encounter a single example of extraordinary achievement that occurred without the active involvement and support of many people. Nor was there a single instance in which one talented person - leader or individual contributor - accounted for most, let alone 100 percent, of the success. Throughout the years, leaders from all professions, from all economic sectors, and from around the globe continue to say, "You can't do it alone." Leadership is not a solo act, it's a team effort. This part of the series will teach you about the importance of fostering collaboration (and the methods for doing so), along with ways to empower and strengthen your team. This is the fifth in a series of SmartTeam courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 2 | Intermediate |
| Smart Leadership: Part 6 - Encourage the Heart | "Most people rate "having a caring boss" even higher than they value money or fringe benefits. In fact, how long employees stay at a company and how productive they are there is determined by the relationship they have with their immediate supervisor. This segment in the Leadership Challenge Series covers the last - but in no way least important - practice of exemplary leadership, "Encourage the Heart." You'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. Exemplary leaders keep four essential points at the fore: focus on clear standards, expect the best, pay attention, and personalize recognition. Learn how to put these points into practice to stimulate and motivate each individual on your team! This is the sixth and last in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner." | 1.5 | Intermediate |
| Smart Management: Methods for Motivating and Mentoring Your Team | Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company. | 2 | Intermediate |
| Smart Management: Business Essentials | "You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind." | 2 | Intermediate |
| Smart Management: Coaching for Better Performance | There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as "The Boss" and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a "coach." Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan. | 1 | Intermediate |
| Smart Management: Data Security | Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information. | 1 | Intermediate |
| Smart Management: Discrimination in the Workplace for Managers | As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination. | 1 | Intermediate |
| Smart Management: Effective Performance Review Practices | Studies show that well over 90% of organizations engage in a formal employee Performance Review (or Appraisal) Process, but the practice is highly varied between companies - and sometimes within a single company - in both the way it is conducted and its effectiveness. In fact, Performance Review is often dreaded by both managers and employees. One reason is that managers often lack skill in objectively evaluating and providing useful feedback to employees. The purpose of this interactive online course is to equip managers to engage in effective employee performance reviews that will help employees understand and maximize their performance. We will also show how employees can best participate in the process. When done effectively, the Performance Review will have a positive impact on the motivation and performance of employees and their managers and will benefit the entire company. | 2 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Management: Equal Employment Opportunity and Diversity for Managers | As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce. | 1 | Intermediate |
| Smart Management: Getting the Most out of a Multigenerational Workforce | Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them "tick". This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just "well" but "with excellence". | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Customer Service | Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position. | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Sales | "Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position." | 1 | Intermediate |
| Smart Management: How to Handle Workplace Challenges | "Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles." | 1 | Intermediate |
| Smart Management: Key Skills for Managing & Coaching Your Team | Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, "Take Care of Yourself." | 0.5 | Intermediate |
| Smart Management: Lawful Hiring Practices | The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts. | 1 | Intermediate |
| Smart Management: Lawful Termination Practices | "There comes a time for every manager when they are faced with the need to terminate an employee. The difficulty comes with ensuring that the company is in a position that prevents any liability on their part for that termination. Unfortunately in today's legal climate, wrongful termination suits are the number one labor lawsuit brought before the courts. The judicial system sees many of these cases, especially when economies experience a downturn and employees struggle to keep their jobs. This interactive online course outlines the criteria for legal termination, and explains how to ensure your company is prepared. Proper procedures need to be in place, and managers need to be knowledgeable of employment laws and the consequences for wrongful termination." | 0.5 | Intermediate |
| Smart Management: Managing a Geographically Distributed Workforce | "It is becoming increasingly rare in today's business climate for all team members to be located centrally or working from a single office. Whether it is satellite offices, team members working at home, or offsite third party vendors, the workforce of today is more than likely dispersed among a variety of offices in separate locations. In this interactive online course, we will examine the factors that necessitate a remote and often globally distributed workforce. We will also discuss best practices for managing offsite teams and pitfalls to avoid in the process." | 0.5 | Intermediate |
| Smart Management: SMART Goals - Setting Effective Targets for Success | Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success. | 1 | Intermediate |
| Smart Management: Successfully Transitioning from Team Member to Manager | "Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader. During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed." | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Management: The Art & Science of Delegation | "Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tell us when others can do needed activities, faster, cheaper, and better than we can ourselves. The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects." | 1 | Intermediate |
| Smart Mental Health: Core Values and Finding a Purpose in Life | "If you ever felt uncomfortable in a relationship or out of place in your company but didn't know why, it could be that the person or the corporation has core values that are different from yours. If this situation sounds familiar, or if you'd like to know more about values and how to get clearer on your life's purpose, then this is the course for you. We will guide you to define your core values and your life's purpose, and explore practical ways to create a personal and professional life in harmony with the inner you." | 1 | Intermediate |
| Smart Mental Health: Goal Setting and Visualization Techniques | Goal setting is the foundation of all successful endeavours. When we set a goal, what we are really doing is defining the roadmap of our life. With each goal we set, we establish the path we wish to take towards our objectives. | 1 | Intermediate |
| Smart Mental Health: Happiness is a Choice - Keys to Living a Joyful Life | This course will take us on a journey through five core areas of our human experience: the physical, the psychological, the spiritual, the social, and the occupational elements of being human that make up our lives. In each area we will learn about a tried and true pathway leading to greater happiness. For each of these pathways, we will offer tips and tools to help implement strategies to build happy and contented lives. | 1 | Intermediate |
| Smart Mental Health: Keys to Successful Parenting | "Understanding the common pitfalls of parenting, how to provide constructive discipline, and how to develop a healthy relationship with your child are just a few ways to identify areas for connection and improvement. This course is intended to help you as parents not only define your role and style, but to improve upon problem areas. You will be able to identify with the content and then think about how you can apply it to your own experience. Most parents recognize that this role can be a challenging one and that those who serve in it are often a work in progress. Identifying areas for improvement and understanding what it takes to raise successful children is pivotal. You will get examples to consider what you can do to be more helpful to your children, create a loving and nurturing environment, and help their development in the most effective way possible." | 1 | Intermediate |
| Smart Mental Health: Managing Anger and Emotions | "The modern workplace is often thought of as a strictly professional, rational, logical environment. Cooperation is key—personal opinions and emotions must be put aside in the name of teamwork, which may be easier said than done! No one can expect to connect with fellow colleagues the way they do their own friends or family members. One crossed word or bad mood can damage corporate relations, sometimes irreparably. The uncertainty of the business environment of today, and resulting stress that follows only adds to the pressure workers feel in performing their level best. Feeling overworked and overwhelmed is natural in the workplace, especially when it comes to dealing with change. The purpose of this course is to illustrate ways you can overcome the emotional barriers you may face in the workplace. This course will guide you through various exercises and give you tips to help you manage your emotions at work so you can perform to the best of your abilities." | 1 | Intermediate |
| Smart Mental Health: Reducing Stress and Anxiety | "Stress is our body's way of responding to physical, emotional, or mental demands. Although typically associated with negative circumstances, stress can be caused by both good and bad experiences. Our bodies react to stress by releasing chemicals into the blood to give us energy and strength to handle the situation. This evolutionary reaction can be a good thing when stress is caused by real physical danger; however, this survival response can wreak havoc if it builds up without a proper outlet. This interactive online course discusses signs and symptoms of stress, and explains the physical and emotional effects of built up stress, such as pain and anxiety. The course also describes stress management techniques, treatment options, and lifestyle changes to help alleviate stress." | 1 | Intermediate |
| Smart Quality: Building Quality Awareness | "You expect quality from your vendors and your customers expect quality from you and your organization. In this SmartTeam course we will familiarize you, regardless of your level in your organization, with the meaning of quality, how it is critical, and how to begin to put it into motion in all of your work." | 1 | Fundamental |
| Smart Quality: Process Improvement | All work is a process—plain and simple. A process is a series of events, activities, decisions, or tasks that transform inputs into outputs. Processes can be very large, crossing many functions within your institution or organization; or small, existing within a department or unit. Smaller processes exist within the context of larger processes. It is imperative as you start that you are careful in what processes you select for improvement. This interactive online course discusses selecting, monitoring, and improving processes so you will be able to provide your products or services accurately and on time. | 0.5 | Fundamental |
| Smart Quality: Systematic Problem Solving | All organizations are challenged by problems that need to be fixed. You can become a master troubleshooter and problem solver. In this interactive online course we will instruct you in successful systematic problem solving, giving you methods and tools that you can use regardless of your position or organization. | 0.5 | Intermediate |
| Smart Sales 1: Understanding the Psychology of Sales | "Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. " | 0.5 | Fundamental |
| Smart Sales 2: Identifying the Decision Maker & Setting Appointments | Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 3: Securing Appointments & Advancing the Sale | Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Sales 4: Overcoming Objections & Closing the Sale | Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 5: Business-to-Business Sales | Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 6: The Sales Cycle | Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Closing the Call | "Never has so much been written or talked about in prospecting and selling as closing or asking for the sale. Quite frankly, closing is easy and simple. In this eighth course in a 10-part series, you will learn how to implement an effective consultative process that will help you successfully close the call. The purpose of this course is to provide you with simple and effective techniques to move the sale forward and achieve your sales objective." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Creating Opening Statements | "Without a doubt, the opening statement is the most important part of your tele-prospecting call. This third course in a 10-part series helps you develop an effective opening statement that will get more prospects to stop and listen. This course provides you with a process by which to develop an effective opening statement, including templates that you can use as models for those opening statements. By immediately gaining the attention and interest of the decision maker, you will quickly get your foot in the door so you can meet and exceed your sales objectives." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Dealing With Dismissive Objections | "One of the most significant components of tele-prospecting is handling knee jerk objections. Decision makers may not want to be bothered, so objections may be tossed out at the beginning of the call to get you off the phone. If you aren't prepared to field these questions effectively, your opportunities to set appointments and sell will be greatly diminished. The purpose of this fifth course in a 10-part series is to help you overcome objections and continue the sales dialogue so that you can achieve your sales objective. " | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Follow-up Strategies and Tactics | "In many ways, the follow-up call is far more significant than the cold call. This is where value is created, where trust is further established with your prospect, and ultimately, where the rationale for buying is formed. Despite the importance of the follow-up, many tele-prospectors lack skill in this arena. In this ninth course in a 10-part series, we will discuss follow-up strategies and tactics to master the art of follow-up and close more sales. The goal of this course is to provide you with a follow-up strategy to help continue the sales cycle and ultimately close the sale." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Getting Past Gatekeepers | "The key to successful tele-prospecting is getting through to as many decision makers as possible. Unfortunately, human and electronic gatekeepers are often used by the decision maker to screen your calls. The purpose of this course is to provide you with strategies and tactics to get past these gatekeepers so you can reach your target and achieve your goals. This second course in the 10-part series covers a variety of methods and techniques that you can test, employ and master to improve your efficiency and effectiveness." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Handling Smokescreen and Authentic Objections | "Objections come in all shapes and sizes and some are easier to distinguish than others. While many objections are clear cut indicators of disinterest, others may be more vague and harder to discern. In this seventh course in a 10-part series, we will look at how to recognize and handle ambiguous objections effectively. The purpose of this course is to provide you with various tactics to help understand and manage both smokescreen and authentic objections, ultimately giving you greater confidence in dealing with your prospects and moving the sales cycle forward." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Overview and Pre-Call Planning | "This first course in a 10-part series introduces you to the process of tele-prospecting and shows you how to begin using this method to effectively and efficiently mine for prospective clients. This questions-based, consultative approach to tele-prospecting is designed to get the client involved to determine needs, or potential needs. This course is for anyone who uses the telephone to qualify prospects, generate leads, set up appointments, or sell direct. The overall goal of this training series is to provide you with tips, tactics, and processes to maximize your tele-prospecting potential, and increase your success at prospecting by making you more effective on the phone. In short, it is to make you a better prospector and salesperson." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Presenting an Offer | "Your offer, or sales message, is your opportunity to present your solution to the prospect and ultimately close the deal. To be effective, your message must be compelling and intriguing, and it must provide a reason for the prospect to take the next step. This sixth course in a 10-part series discusses how to present an effective offer or sales message. The purpose of this course is to provide you with the skills and techniques to craft and deliver a persuasive sales message that motivates prospects to take action." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Qualification and Questioning | "Effective questioning is at the very heart of the advanced tele-prospecting process — it is what separates tele-selling from tele-marketing. Effective questioning is what creates a quality lead, a good appointment, or a very good sale. This fourth course in a 10-part series discusses how to use questioning to identify needs, build rapport, and advance the selling process. The purpose of this course is to provide you with specific skills and techniques so you will question more effectively over the phone." | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Using Email in the Tele-Prospecting Process | "There is little doubt that email is one of the primary methods of communicating with a decision maker, so it makes sense to have an email component in your tele-prospecting approach to the marketplace. The trick is to develop a good email that cuts through the clutter so it will be read and remembered by your prospect. This final course in a 10-part series discusses how to sell more by integrating email into your tele-prospecting process. The purpose of this course is to provide you with specific strategies and tactics on how to use email and voice follow-up effectively, while also providing you with email templates you can use to craft your own personal email message." | 0.5 | Fundamental |
| Smart Time Management: 7 Steps to Regaining Control of Your Day | Feeling out of control and overwhelmed by everything you need to accomplish each day? No matter how hectic your schedule appears, you can regain control of your day and increase your daily productive time. How? Effective time management is your tool to design success at work and at home. This interactive online course details a complete, integrated time management system. This system contains just seven steps, which will assist you in developing an effective and efficient method for allocating time and regaining control of your life. In addition to honing your prioritization skills, you will also learn how best to use your reclaimed time and how to periodically reassess your time management process so you can maintain control of your day. | 1 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Time Management: The 80/20 Rule for Making Every Minute Count | "In 1897, Italian Economist Vilfredo Pareto found that 20 percent of any given population, of any country during any time period, accounted for 80 percent of the wealth. This pattern is repeated in many aspects of life, not just wealth. The 80/20 Rule as applied to time management reveals that there is generally a significant imbalance between our efforts and our results. Instead of there being a one-to-one relationship between effort and result, it turns out that 20 percent of our efforts produce 80 percent of the results. Conversely, the other 80 percent of our efforts produce only 20 percent of the results. This 1-hour interactive online course from SmartTeam explores how we can channel our time and effort to get the greatest results with the least amount of effort and stress. It focuses on your individual abilities, and teaches an entrepreneurial time management approach together with creative use of the 80/20 Rule. In other words, it will help you prioritize so that you do most often the things you are best at and enjoy the most. You will learn to strive for excellence in a few things, rather than achieving mediocre performance in many." | 1 | Fundamental |
| Smart Workplaces: Code of Conduct - Ethics Education & Social Media Guidelines | "At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination." | 2 | Intermediate |
| Smart Workplaces: Designing Safe Workspaces & Preventing Injury | Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more. | 1 | Fundamental |
| Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146) | "Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals: Build and maintain a broader network of trusted professionals, Generate leads, Learn about other companies and their hierarchies, Leverage powerful tools to find and reach the right peopleTap into the knowledge of their network, and Discover new opportunities<br>This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn." | 0.25 | Fundamental |
| Smart Workplaces: Preparing for a Pandemic Flu Outbreak | What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff. | 1 | Intermediate |
| Smart Workplaces: Putting Your People First - Personnel Administration | "The most important resource available to any organization is people. Organizations are made of people, and an organization cannot fulfill its intended mission without good employees. These employees need effective leadership to accomplish organizational goals and objectives. A good leader knows how to hire and keep good employees by following the rules and regulations that govern employment. This interactive online course will discuss several personnel issues of interest to all organizations. Whether you have 10 employees or 200 employees, just about every issue discussed in this SmartTeam course will, in some way, apply to your business. Issues discussed in this course include: Personnel Administration (Management and Leadership, Hiring and Firing Practices, and Employee Manual/Handbook)Sexual Harassment, Equal Employment Opportunity (EEO), Drug Free Workplace, The Americans with Disabilities Act of 1990 (Including 2008 amendments) " | 2 | Fundamental |
| Smart Workplaces: Responsible Social Media for Team Members | "It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies." | 0.5 | Fundamental |
| Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158) | "There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women." | 0.5 | Fundamental |
| Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145) | "Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls.<br>Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected." | 0.5 | Fundamental |
| Sources of Electricity, Part 1 | Sources of electricity typically refer to the different types of fuel or power used to generate electricity. With the exception of solar power, these sources all involve spinning a copper wire between magnets. This course describes how electricity is produced through electrochemical production, magnetic induction, and the photoelectric effect. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| SPCC Inspections | The purpose of the EPAs Spill Prevention, Control, and Countermeasure rule is to prevent oil contamination of navigable waterways and adjoining shorelines. Facilities which store or handle sufficient quantities of oil are required to create an SPCC plan, which includes inspection and testing procedures and schedules. The purpose of SPCC inspections is to prevent oil discharges due to container and equipment failures. Personnel conducting the inspections are trained to look for signs of corrosion, leaks, brittle fracture, overflows, and other problems. | 0.5 | Intermediate |
| SPCC Run-On and Runoff | The purpose of the EPAs SPCC rule is to prevent oil contamination of navigable waters and adjoining shorelines. Facilities which store or handle large quantities of oil are required to create an SPCC plan whose purpose is to prevent, control, and deal with oil discharges. One way these facilities can unintentionally discharge oil to waterways is with runoff. To prevent this, they can prevent run-on from reaching equipment with the potential for oil discharges, and also prevent oil-containing runoff from leaving the facility. This course describes the containment measures that can be used to accomplish these goals. | 0.5 | Intermediate |
| SPCC Secondary Containment | At facilities regulated by the SPCC Rule, all containers, equipment, and areas with the potential for oil discharges are subject to secondary containment requirements. Affected equipment and areas must have appropriate containment that is able to contain the most likely quantity of oil that would be discharged until it can be cleaned up. The original containers, equipment, and piping serve as the primary containment, while the secondary containment serves as backup protection against spills, leaks, and primary containment failures. This course describes the secondary containment that can be used to prevent oil discharges. | 0.5 | Intermediate |
| Speed and Space Management | Speeding is one of the contributing factors in a large percentage of crashes. Not only does speeding above the posted speed limit increase your risk of being involved in a crash, it also increases the severity of the crash. High speed crashes are more likely to result in a fatality or injury compared to lower speed crashes. This course will identify why it is important to manage your speed and space around your vehicle and describe strategies for effective space management. | 0.25 | Intermediate |
| Spill Prevention, Control, and Countermeasures | When oil is spilled, it can endanger public health and the environment, as well as cost millions of dollars in clean up and disposal. To prevent oil contamination of navigable waterways and adjoining shorelines, the U.S. Environmental Protection Agency created the Spill Prevention, Control, and Countermeasure rule. Having a spill prevention plan in place is among the most effective and efficient tools in preventing environmental contamination. This course will discuss spill-related pollution, spill prevention techniques, appropriate procedures for controlling a spill in the event that one occurs, and countermeasure techniques that can be taken to help comply with federal regulations. | 0.5 | Intermediate |
| Steam Boilers | "The purpose of a steam boiler is to create steam by applying heat energy to water. The most common source of heat is that from the combustion of an organic fuel like natural gas, fuel oil or coal.The value of steam in a commercial building is that it is an effective medium for distributing heat throughout a building or even a group of buildings. The combination of a steam boiler and steam distribution system means that all the heat generation can be done efficiently in one location and the steam can be easily distributed to all of the places it is needed for heating. In this interactive online course, we will discuss the function of boilers and steam. We will cover different types of boilers, including fire tube boilers and water tube boilers. We will also discuss combustion and steam traps." | 0.5 | Fundamental |
| Steam Pipe Safety | Steam is used around the world in many different ways. In industrial environments, it is commonly used for power generation and in heating and drying applications. When used properly, steam is one of the cleanest, most efficient, and safest forms of energy in use. However, employees should be prepared and aware of the hazards present when working around steam pipes in order to avoid accidents and injuries. This course describes the hazards presented by steam pipes, how to prevent them, as well as how to properly inspect, insulate, and label steam pipes. | 0.5 | Intermediate |
| Steel Erection Safety | Steel erection involves assembling and connecting steel beams to form a structural frame for buildings and bridges. There are many obvious hazards associated with lifting large, heavy steel members and working at heights. According to the United States Bureau of Labor Statistics, an average of 15 ironworkers die each year in work related accidents. Precautions should be taken to prevent injuries during the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. This module provides hazard awareness information to prevent the most common incidents. | 0.5 | Intermediate |
| Stop When Unsure | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Stop When Unsure human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Storage and Handling of Category 1 and 2 Flammables | GHS Category 1 and 2 Flammable liquids have flash points below 73.4 F (23 C), which means that they produce vapors that can ignite and burn at normal working temperatures if an ignition source is present. Their ability to self-ignite and to explode under certain conditions make them particularly hazardous. To safely store and handle flammable liquids, read and understand their labels and safety data sheets, and follow the best practices and regulations included in this course and established for your worksite or location. | 0.5 | Intermediate |
| Storage and Handling of Category 3 and 4 Flammables | Category 3 and 4 flammables, previously identified as combustibles, have higher flash points than category 1 and 2 flammables, which means that they require higher temperatures to produce vapors that will ignite and burn if an ignition source is present. To safely store and handle combustible liquids, make sure you read and understand their labels and safety data sheets, and fully understand their hazards. Also follow the combustible liquid storage and handling best practices in this course and for your workplace. | 0.5 | Intermediate |
| Storage and Handling of Corrosives | Corrosives are substances that damage or destroy other substances on contact. Most are strong acids, strong bases, or concentrated solutions of weak acids or weak bases. To safely store and handle corrosives, read the container labels and safety data sheets, and follow the requirements and precautions they contain. Also follow the storage and handling best practices for hazardous chemicals and corrosives for your workplace and listed in this course, and keep an accurate inventory at all times. | 0.5 | Intermediate |
| Storage and Handling of Pesticides | Pesticides are used in many different applications to prevent, destroy, repel, and mitigate pests. A pest can be any plant or animal that endangers our food supply, health, or comfort. Because pesticides are toxic, they are inherently hazardous. To avoid their potential hazards, always review and follow the recommendations and precautions listed on pesticide labels and in SDSs, and adhere to the best practices presented in this course, plus any that have been established for your workplace. | 0.5 | Intermediate |
| Stormwater Pollution Prevention | Stormwater runoff is the result of precipitation created by rain or snowmelt flowing over any exposed surface, such as equipment, roofs, roads, and pastures. As the water flows over urbanized and industrial areas it has the potential to pick up a number of contaminants like oil, sediment, chemicals, and litter. This water is then transported to nearby waterways. Polluted stormwater draining from urbanized areas is one of the leading causes of water pollution in lakes, streams, and oceans. This course describes the legal provisions related to stormwater pollution prevention as well as structural and operational best management practices at facilities. | 0.5 | Intermediate |
| Storytelling for Business | Use the power of stories to connect with your team and your customers. Storytelling is a powerful tool you can use to improve presentations, share a vision, sell products, and connect with customers and colleagues Join national award-winning storyteller Andy Offutt Irwin and leadership guru Kelly Vandever as they show you how to create, organize, and use your own personal and business stories. | 1.25 | Fundamental |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Strategic Brand Management | Effective brand strategy necessitates taking a pan-company perspective to understand the organisation's competencies, identify new opportunities and leverage the advantage of corporate culture to deliver the brand promise. Brand success does not result just from focusing on customers, but rather from adopting a more balanced perspective by addressing stakeholders. In an era when it is easy to copy what a brand can deliver (functional values) it is more difficult to copy how the brand is delivered (emotional values). This session will address how by looking inside and outside an organisation brands can grow and be sustained. It will open by presenting a model to strategically grow and sustain brands, 'From brand vision to brand evaluation'. After explaining the model, the different elements of the model will be explored to show how the model can be used to develop valuable brands. | 2.92 | Intermediate |
| Stress & Change Management for Design and Construction Professionals | "Stress can be defined as a chronic imbalance of the autonomic nervous system (ANS). This 4-hour interactive online course discusses the dangerous effects of stress and how to control stress through a Stress Management and Relaxation Training Program (SMART). This course is divided into three parts, providing the student with a background study of stress, reasons why it is a problem and practical tested information and techniques concerning stress. These techniques can improve the quality and, very likely, the length of your life. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 4 | Fundamental |
| Stress Management and Prevention | Employees constantly encounter conflicts with bosses, changing responsibilities, financial pressures and many other situations that can lead to stress. Workplace stress can negatively affect a company due to decreased attendance, proficiency, and productivity. This course will help workers identify potential stressful situations, become aware of the effects stress can have on their health, relationships, and careers, as well as list ways to manage stress. | 0.25 | Intermediate |
| Stronger Together: Delegation and Task Management | "YOU CAN'T DO IT ALL! It's time to delegate. Delegation is perhaps the most important skill for a manager of people to learn and master. You can't do everything yourself, and you'll go crazy if you try! At the same time, delegation is challenging and it takes both commitment and an investment of time to get it right. The good news is, once you start delegating well, you'll be surrounding yourself with capable and empowered team members. This course follows the story of child prodigy, Brianca, and "Play All Day", the toy company she started with children like herself. Brianca learns quickly that the only way to accomplish her goals is to delegate well to those around her. Watch and learn as the "Play All Day" team grows together into a high-functioning team where each member feels valued and important. The course finishes with a bonus module on task management tools to help you keep track of your team's work. By the end of this course, you'll be inspired to go forth and delegate!" | 0.5 | Fundamental |
| Substance Abuse Awareness | Drug addiction is when an individual is involved in compulsive drug seeking and use, regardless of any negative health or social consequences. This compulsive drug use can cause employees to be more likely to miss work, be less productive, or even be involved in on-the-job accidents. This course raises awareness by discussing the effects of different types of drugs and alcohol as well as how to recognize and deal with symptoms of abuse. | 0.5 | Intermediate |
| Successful Hiring | Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview. | 1.25 | Intermediate |
| Successful Negotiation | One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, you'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life. | 1 | Intermediate |
| Successful Termination | Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee. | 1.25 | Intermediate |
| Supported Scaffold Safety | This course covers some of the more important OSHA requirements for supported scaffolds, as well as basic safe practices for working on or near these scaffolds. It is intended as an introductory or refresher course for construction and general industry workers who will be working on or near scaffold systems. | 0.5 | Intermediate |
| Supporting Change: 01-The 3 Phases of Change | Understand the three phases of change and what to expect in each phase. | 0.08 | Intermediate |
| Supporting Change: 02-Reactions to Change | Identify the common reactions to change and strategies to best handle each type of reaction. | 1 | Intermediate |
| Supporting Change: 03-Your Path to Supporting Change | Learn and apply the five-step process for helping your team through changes in the workplace. | 1 | Intermediate |
| Supporting Change: 04-Mastering Supporting Change | Practice Supporting Change in a full scenario situation. | 1 | Intermediate |
| Supporting Change: 05-Supporting Change Health Check | Test your ability to apply Supporting Change concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Sustainable Building Technology | This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment. | 2 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Synchronous Motor and Controller Maintenance | Synchronous Motor Maintenance Power factor correction; Constant Speed under varying load; High efficiency; High torque at low speeds; Low Maintenance; Performance stability and Compatibility with Variable Speed Drives are among the many reasons for the popularity of Synchronous Motor Applications throughout industry. Like all manufactured products, however, Synchronous motor systems must be monitored and maintained or the performance benefits will diminish or disappear. This lesson focuses on the routine maintenance requirements for Synchronous motors and their controllers. | 1 | Intermediate |
| Tanker Rollover | Approximately 1300 tanker truck rollovers occur every year. These rollovers are the reason behind one in four accident-related truck driver deaths. This course emphasizes the importance of drivers paying close attention to the road and its conditions, as well as how their behaviors and decisions can factor in a rollover. | 0.25 | Intermediate |
| TDLR TEST Basic Electricity I | "This two hour interactive online course introduces basic electrical terms and calculations. Simple electrical circuits are used to illustrate the application of Ohm's law including the calculation of voltage, current, resistance and power in various circuit configurations. Basic electrical terms are defined and explained. This course includes a multiple choice quiz at the end. To comply with 2001 AIA and state requirements, all new online courses must be evaluated to confirm the assigned credit hour value. The assigned credit hour value for this course is 2 hours, pending confirmation within 90 days. Please be assured RedVector.com has NEVER had a course NOT meet its assigned credit hour value after evaluation, but has agreed to abide by the 2001 AIA and state requirements regardless. RedVector.com will refund the difference in price should any online course be assigned less credit than originally estimated." | 2 | Intermediate |
| Texas Electrician 4 Hour CE Program #5 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units. | 4 | Intermediate |
| Texas Electrician 4 Hour CE Program #6 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 4 | Intermediate |
| Texas Electrician 4 Hour CE Program #7 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 4 | Intermediate |
| The Art of Negotiation | From childhood we practice the art of negotiation. Bed time, a treat, a promotion, a raise, an extended deadline. Regardless of the type of work we do, knowing how to negotiate effectively can greatly impact our success and our satisfaction. Strategic application exercises and a rich multimedia process, will teach you basic skills to negotiate effectively to get the results you want. | 0.6 | Intermediate |
| The Change Process | In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes.This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours. | 2.5 | Intermediate |
| The Hazards of Oxygen and Oxygen Enrichment | This course will introduce and describe the characteristics of oxygen (O2). It will discuss the health hazards of O2 and how to detect oxygen deficient and oxygen enriched atmospheres. You will learn best work practices including handling and storage. | 1 | Intermediate |
| The Power of One-Taking Accountability to Get Results | Have you ever said that something is not your responsibility? Maybe it is! Learn how taking accountability can change the results you are getting at work and in your life. This course uses application exercises and a rich multimedia process to give you the insight and skills to change your results through taking accountability. | 0.5 | Intermediate |
| The Power of Vision | Do you know where you're going professionally? Do you know what you want out of the next 3 weeks? How about the next 3 years? This course will help you create a powerful vision of where you want to go and what you want to achieve. You'll also learn how to get others on board with your vision. You will learn from real-world examples of different individuals and how they took their vision of what they wanted and made it a reality. Whether you are trying to get somewhere personally, or you want to create a clear and compelling vision of where you want your team to be, this course can give you the foundation you need to get pointed down the right path. | 0.5 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
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| The Principles and Implications of the International Energy Conservation Code (IECC) v2012 | Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard. | 2 | Fundamental |
| The Risk of Misclassification of Employees & Essentials of I-9 Compliance (RV-PGM144) | In the first module of this interactive, online program, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors. The second module of this program will discuss valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce. | 1 | Fundamental |
| The Safe Lab Environment | This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| The Safe Operation of Utility Carts | Utility Carts are used in many types of facilities from warehouses to apartment complexes. This video addresses the many hazardous and potentially dangerous situations often overlooked by Utility Cart operators. It stresses the importance of following safety guidelines, and the problems caused by complacency in the operation and basic maintenance of these utility vehicles.Topics covered also include:Daily Inspections (tires, fluids, steering, obstacles)Load limitsOccupant & Pedestrian safetySpeeding, skidding & slick surfaces Turns, center of gravity & blind spotsBacking up, ramps and parkingRules for riders | 0.15 | Fundamental |
| The Science of Mold | "Mold is found throughout nature and is critical to the success of the food chain in forests and low land areas. Yet, if mold shows up in your home interior, it is usually a sign that something is wrong. If not dealt with correctly, mold will become a problem for the human inhabitants.<br>This course will introduce you to the fundamentals of what good and bad mold is, and why it should be respected but not feared. It will also provide the building blocks for a more complete understanding of what it takes for fungal growth and some simple steps toward safely remediating it from the indoor environment." | 1 | Fundamental |
| The Science of Personal Productivity | "Exploring the power of the mind to get more done.<br>Do you start your day by checking your email and then get stuck? Do you let one big task loom over your head and get in the way of your productivity? Do you find yourself saying "Yes" to too many tasks and then not having enough time to do anything well? If any of these sound like you, this course from Dr. Rebecca Heiss will help you understand more about why we find ourselves in these situations, and teach you practical, science-based ways to be more productive at work or home." | 0.75 | Fundamental |
| The Top 5 Marketing Mistakes | "What Is The Difference Between A Marketing Campaign That Delivers Average Results, And One That Boosts Profits And Changes Your Bottom Line? (Hint: The keys to effective marketing are in this course).<br>In this course, Rich Harshaw explains why his famous statement, ""Everything You Know About Marketing Is Wrong"" is so universally true, and what businesses can do to revamp their marketing strategies to achieve superior results." | 3 | Fundamental |
| The Ultimate Project Manager, Chapter 01: Today's Project Manager | "Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape.In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program." | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 02: Marketing And Proposals | Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the "go/no go" decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 03: The Contract Agreement | This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 04: The Project Management Plan | The purpose of this course is to provide you will the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 05: The Project Schedule | Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The Ultimate Project Manager, Chapter 06: The Project Budget | Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 07: Leading The Project Team | " The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team" | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 08: Managing Client Relationships | In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 09: Developing Effective Communications | Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 10: The Project Startup | A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 11: Managing Your Time | Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports | Because many design firms are consultingwith clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases | Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 14: Managing Project Quality | "Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects.<br>You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up" | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 15: Managing Project Risks | "The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm" | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 16: Project Financial Management | "Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its "as-sold" financial results with no write-offs In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail." | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 17: Project Management And Design Technology | Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project | The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 19: Project Closeout | "Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide youryou through the processes and all considerations that should be accomplished in athat should be considered during project closeout.<br>You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout." | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods | "Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods." | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data | As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing. | 1 | Intermediate |
| The Ultimate Project Manager, Series Summary: The Short and Sweet Version | The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close. | 1 | Intermediate |
| The WELL Building Standard | How well does your building fit your tenants? Do your employees need a place to walk or work out? This interactive online course introduces the WELL Building Standard and discusses unique "features" (known as "credits" in LEED) to certify projects and gain the credential. We will discuss the application of the WELL standard to a hypothetical case study, conducting a feature-by-feature analysis and comparing the building before and after the standard is applied. | 3 | Fundamental |
| Three-Phase AC Induction Motor Maintenance | This course covers three-phase alternating current (AC) induction motors, which use magnetic induction to convert three-phase AC power into mechanical energy. They are used throughout industry to drive equipment such as conveyor belts, pumps, air compressors, and generators. Three-phase AC induction motors are economical, efficient, and reliable. But, although they are reliable, they may still break down. Electrical maintenance personnel are responsible for maintaining the three-phase induction motors in their plant and for fixing any AC motors that have broken down. | 1 | Intermediate |
| Time Management Basics | You can improve the way you use time. You can avoid patterns and habits that make it difficult for you to get things done. Benjamin Franklin said, Dost thou love life? Then do not squander time, for that's the stuff life is made of. | 1.5 | Fundamental |
| Tips for Managing Older Team Members | Being in a leadership position early on in your career is exciting. But on the flip side, you can face hurdles, including learning how to manage employees who may be years older than you. Older employees are a talent pool that shouldn't be underutilized despite the age gap. This video will provide some tips of what to do, and what not do to, when managing older team members. | 0.2 | Intermediate |
| Toxic Substance Control Act (TSCA) Compliance | With new chemicals and products being introduced into the marketplace on a daily basis, it is imperative that manufacturers properly identify and evaluate new products prior to being released for use. This course will discuss how the Environmental Protection Agency (EPA) regulates polychlorinated biphenyls (PCBs) use in the United States. In addition, this course will discuss compliance strategies based on the Toxic Substance Control Act's sections and titles. | 1 | Fundamental |
| Transformer Maintenance | This course is intended to provide participants with a basic background in transformer theory and connection schemes as well as an overview of the most common transformer types and the typical maintenance and testing procedures that apply to them. | 1 | Intermediate |
| Transformers | Substations and switchyards contain various types of transformers. Among them are power transformers, current transformers, and potential transformers. Each of these types of transformers has unique features that distinguish it from the other types of transformers and from other substation and switchyard equipment. In this course, you will learn about these transformers as well as their connections and basic principles. | 1 | Intermediate |
| Transformers, Breakers, and Switches | This course is designed to familiarize participants with basic concepts associated with the operation of transformers, circuit breakers, and various types of switches. After completing this course, participants should be able to explain the basic principles of transformer operation, identify some of the basic components of a transformer, and describe checks that are generally made during a transformer inspection. They should also be able to describe the general operation of a circuit breaker, explain how to reset a tripped circuit breaker and how to rack out a circuit breaker, and describe the basic operation of pushbutton switches and rotary switches. | 1 | Intermediate |
| Transition to Leadership | New to a leadership role? You're in the right place! As leadership, you have a different focus, new responsibilities, and different challenges than you did as an individual contributor. This course covers the ins and outs of the sometimes difficult transition experience from an individual contributor into leadership. Regardless of your title or the type of leadership role you now fill, through interactive assignments and a rich multimedia process, this course will smooth your transition and put you in position to excel in your new role. | 0.6 | Intermediate |
| Transmission and Distribution: Distribution Line Installation and Removal | "Sometimes changes are made in the area around a distribution line that make it necessary to relocate or replace a portion of that line. This interactive online course will familiarize you with the general procedures involved in completing a typical distribution line installation and removal.<br>You will learn how to plane an installation and removal job and how to perform the major steps involved in doing the job. You will also learn how to pull and sag lines, parallel a new line with an existing line, remove conductors, and remove equipment." | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Transmission and Distribution: Distribution Line Replacement | The purpose of this course is to teach how to replace conductors in an existing line with new conductors. The situation described is one that often occurs when it is necessary to increase the size of the conductors in a line. This interactive online course demonstrates how to install the new conductors, parallel them with the existing conductors, and remove the old conductors. The importance of maintaining the proper clearances and the importance of maintaining the integrity of the existing line are explained. Safety is emphasized throughout the course. At the conclusion of this course, participants should be able to plan a replacement job and demonstrate how to perform the major steps involved in doing the job. They should be able to install temporary crossarms, transfer lines, pull and sag new lines, parallel a new line with an existing line, and remove old conductors. | 1 | Intermediate |
| Transmission and Distribution: Focus on Distribution | "The transmission part of a transmission and distribution system supplies electricity to substations and individual service areas. While the job of the distribution part of a T&D system is to take this electricity and supply it to individual consumers at a voltage they can use; doing this job properly requires the use of a variety of electrical devices and an intricate system of distribution lines. This interactive online course will teach you about the components that make up a typical distribution system. You will learn how to recognize individual components and gain a basic understanding of the jobs they perform." | 1 | Intermediate |
| Transmission and Distribution: Framing Specifications and Basic Construction Diagrams | The purpose of this course is to teach participants the kinds of information that can be obtained by reading electrical system diagrams and to illustrate how this information can be used to assist lineworkers who work on electrical systems. Practical examples of how to get information are given throughout the course. At the conclusion of this course, participants should know what kind of information is typically found on construction diagrams, on schematic diagrams, and in specification manuals. They should know how to use all of these references to determine the information necessary to do a job. | 1 | Intermediate |
| Transmission and Distribution: Introduction to Transmission and Distribution Systems | The purpose of this interactive online course is to teach participants how transmission and distribution (T&D) systems generally deliver to customers the power produced by power plants. The course describes how the major components of a T&D system function and how electricity flows through these components on its journey from the power plant to customers. At the conclusion of this course, participants should have a basic understanding of how transmission and distribution systems operate. They should be able to identify the basic components of a transmission and distribution system and explain their functions. They should also be able to describe the flow path from a power plant, through a typical T&D system, to the customer. | 1 | Intermediate |
| Transmission and Distribution: Overhead Distribution Systems | The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed. | 1 | Intermediate |
| Transmission and Distribution: Pad-Mounted Transformers and Switchgear | The purpose of this interactive online course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer. | 1 | Intermediate |
| Transmission and Distribution: Power Quality | This interactive online course is designed to familiarize participants with the issues and problems associated with maintaining power quality. To obtain maximum benefit from this course, participants should have a general understanding of the basic concepts of electric power generation, transmission, and distribution. At the conclusion of this course, participants should be able to explain the basic concepts of power quality, identify sources and causes of power quality problems, and describe the effects of power quality problems on residential and commercial customers. They should also be able to identify equipment and methods for preventing and monitoring power quality problems. | 0.75 | Intermediate |
| Transmission and Distribution: Service Installation | "Each service installation job you do will be different because of different site conditions, but the basic installation skills and practices you will learn in this course can be applied no matter what type of service installation job you're doing. This interactive online course will teach you how to install and connect services. You will learn about the different types of connectors available and how service conductors are joined together using some of those connectors. You will also learn how to install single phase, overhead, and underground residential service. Additionally, you will learn how to install three-phase service, and how to replace an existing three-phase service without affecting the customer." | 1 | Intermediate |
| Transmission and Distribution: Substations and Switchyards | "Electricity affects almost everything we do. Sometimes its impact is so subtle, we don't even realize it's there. Just about everybody depends on it and expects it to be available when it's needed. From the businesses that use electricity to process information to suburban homeowners who rely on electricity for the basic conveniences we've grown accustomed to, to the rural dairy farmer who relies on electricity to operate much of his machinery, our entire country is interlaced with transmission and distribution systems that get electricity to where it's needed when it's needed. The purpose of this interactive online course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents." | 1 | Intermediate |
| Transmission and Distribution: Transmission Line Installation | The purpose of this interactive online course is to describe and demonstrate an approach to installing a transmission line. This work is not a routine part of a lineworkers's job in many locations, but an understanding of the basic approach is useful to individuals who are responsible for maintaining lines. At the conclusion of this course, participants should understand how to plan and set up an installation job, the purpose of guard structures, and how to set them up. They should also know how to pull conductors into place to properly sag and how to clip them permanently to the insulators. | 1 | Intermediate |
| Transmission and Distribution: Transmission Line Safety | This course is designed to cover three major areas relating to safety in transmission line work: personal safety, electrical safety, and work site safety. Specific attention is directed to proper clothing and protective equipment; hazards associated with slipping, tripping and falling, and lifting and moving loads; electrical hazards and steps that can be taken to safeguard against them; and how personnel can work safely at the job site, both on the ground and while climbing transmission structures. This interactive online course assumed a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction. | 1 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Transmission and Distribution: Underground Residential Distribution Systems | "Recent developments in technology, such as the development of cable and equipment that can be directly buried in the ground have made underground installation of electrical service to residential areas easier than ever. Today, many residential subdivisions have all their utilities installed underground, giving a cleaner, more picturesque look to the neighborhood. This interactive online course is about underground residential distribution systems, also known as URD systems. URD systems are local distribution systems designed primarily to be buried in the ground and serve residential customers. The purpose of this course is to give you a basic understanding of the common types of URD systems, as well as some of the various components that may be used in a URD system. We'll also be looking at some of the ways a URD system can be inspected. Finally, we'll see a demonstration of how a URD system has been set up to allow work to be done on it safely and efficiently." | 1 | Intermediate |
| Transmission and Distribution: Using Line Test Equipment | The purpose of this course is to introduce types of line test equipment used in the field to detect voltage, amperage, and resistance; to show how this equipment is used; and to show the kinds of readings that can be expected from this equipment. After completing this course, participants should be able to identify types of line test equipment used in the field. They should have a basic understanding of the use of this equipment; they should know how to determine which instrument to use; and they should be able to demonstrate the use of each meter to take a reading. | 1 | Intermediate |
| Transmission and Distribution: Using Various Types of Electrical Diagrams and Geospatial Information Systems | Did you know different types of electrical system diagrams are used to show large portions of an electrical system down to a single structure or even a portion of a structure? The purpose of this course is to teach the basic kinds of information that can be obtained from various types of electrical system diagrams: one-line diagrams, plan-profile diagrams, framing diagrams, and GIS technology. The course shows how these diagrams are read and interpreted and how information can be used to complete an assignment. This interactive online course will show participants what information is typically found on one-line, plan profile, framing diagrams, and GIS applications. They should also be able to interpret diagrams to determine the location of a job site and then plan the best route to the site. In addition, participants should be able to use a framing diagram to determine what materials should be present at a work site and in what quantities. | 1 | Intermediate |
| Transmission and Distribution: Working on Distribution Poles | "The purpose of this course is to teach the basic principles involved in working safely on distribution. To illustrate these principles, you will be shown some resources available for planning distribution work.<br>This interactive online course will teach you general considerations associated with planning a distribution job. You will also learn how a variety of tools and equipment can be used, including an auxiliary arm. Additionally, you will learn how to replace secondary conductors, move energized conductors, and how to install floating dead-ends. " | 1 | Intermediate |
| Transporting Hazardous Materials | "<br>Every day, hazardous materials are shipped in this country—materials that could threaten the safety of individuals, property, and the environment. These materials are transported by truck, by train, by air, and by water. Because of the risks posed by transporting hazardous materials, you need to know about the potential dangers and steps you must take to help protect yourself and others against them.<br>In this interactive, online course, we'll cover some general requirements associated with transporting hazardous materials. We'll look at what's meant by the term hazardous materials, and we'll see how these materials are classified. We'll also look at documentation and packaging that must be used when hazardous materials are shipped, and we'll look at labels and placards used to identify hazardous materials." | 0.5 | Intermediate |
| Tree Trimming Safety | Tree trimming is a job that requires a professional attitude and a high level of training in order to work safely and productively. The very nature of tree trimming lends itself to many hazards. Of course, we all are aware of the potential of a serious fall, but there are also risks of coming in contact with energized utilities, falling trees and limbs, contact with poison ivy, oak, or even snakes. A good tree trimming program must be designed to provide safe working conditions, the training needed to do the job safely and efficiently, selection of qualified personnel, and providing well-maintained tools to do the job.Topics covered also include:Saws, axes, and pruning toolsChainsaw usePersonal protective equipmentSafety belts, climbing spikes, and harnessesWorking from ladders, boom trucks or aerial basketsPlanning and other considerations that need | 0.25 | Fundamental |
| Trenching and Excavation Safety | This course covers safe work practices for excavation and trenching work. It is meant to be used as an introductory or refresher course for construction workers involved in digging or working in an excavation. It is based on OSHA Construction regulations and industry best practices. | 0.5 | Intermediate |
| Trenching and Excavation Soil Properties | This course covers the importance of soil properties and classifications when engaging in excavation work. It is meant to be used as an introductory or refresher course for construction workers who will be digging or working in excavations. It is based on OSHA excavation regulations and on recognized best practices. | 0.25 | Intermediate |
| Triethylaluminium Safety Awareness | This course will introduce and describe the characteristics of Triethylaluminium (TEAL). It will discuss the health hazards of TEAL and how to reduce exposure through workplace controls as well as how to mitigate danger through safe work practices and proper PPE. | 1 | Intermediate |
| Troubleshooting Systems and Circuits | Electrical problems may show up anywhere at any time. Some problems are as simple as an abnormal signal value that can be corrected by a minor adjustment. Other problems are not as easy to identify and correct, especially when the cause of the problem is in a non-electrical component or in another system. Regardless of the cause, electricians are responsible for zeroing in on problems whenever they occur and bringing things back to normal. A good way to ensure that the proper actions are taken in response to an electrical problem is to follow a troubleshooting procedure that is both systematic and logical. This course describes the basics of troubleshooting, general guidelines and action steps, and a seven-step troubleshooting method for solving problems. | 1 | Intermediate |
| Truck Mounted Cranes | Cranes are important pieces of equipment that are carefully designed and manufactured. When used properly, cranes provide a safe way to lift objects, and truck mounted cranes can be especially useful because they are mobile. However, cranes can pose many safety hazards. Cranes can tip over or contact electrical power lines. There is also the potential for moving or falling objects to strike workers, which is the leading cause of crane-related fatalities. Operators must be properly trained and everyone on the jobsite should be familiar with truck mounted crane safety. This course will describe common truck mounted crane types and components. The main focus of the module will be on the safe operation of truck mounted cranes. | 0.5 | Intermediate |
| Turnover | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional Turnover human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Turpentine Awareness | Turpentine, also called the spirit of turpentine, oil of turpentine, or wood turpentine, is a fluid obtained by distilling resin from pine trees and other coniferous trees. It is a colorless, volatile liquid with a strong odor. Turpentine is often used as a solvent or thinner for oil-based paints and varnishes. Working with or around turpentine is sometimes unavoidable, so it is critical that you use the proper PPE, follow standard procedures, and know how to handle leaks, spills, and other emergency situations. This course describes what turpentine is, its uses, the hazards it presents, and how to protect yourself from those hazards. | 0.25 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Turret Truck Safety | A turret truck, also known as a swing-reach truck, is a forklift with forks that can pivot 180 degrees and traverse across its entire width. This allows pallets to be stored and picked up at right angles to the turret truck. Also, unlike a standard forklift, the operator compartment raises with the forks. Turret trucks are specially designed to operate in narrow aisles, where there is very little clearance on either side. Because of these unique design features and operating conditions it is important to become familiar with their operation and safety guidelines prior to operating a turret truck. This module covers common hazards, turret truck safety equipment, and safe operating procedures. | 0.25 | Intermediate |
| Underground Storage Tank Requirements (UST) | "Any tank, and associated underground piping, with at least 10% of its volume underground is considered an underground storage tank (UST). Until the 1980s, most USTs were made of bare steel, which easily corroded. This allowed the tank contents to leak into the environment and contaminate soil and groundwater. So, beginning in 1984, Congress passed a series of laws to address leaking underground storage tanks that contain petroleum or other hazardous substances. The federal UST program sets minimum operating requirements and technical standards for tank design and installation, spill and overfill control, leak detection and response, and corrective actions. This course will summarize underground storage tank regulations." | 0.5 | Intermediate |
| Understanding Business Ethics | In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company. | 2 | Intermediate |
| Understanding Fire Sprinkler Drawings and Calculations | Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed. | 1 | Intermediate |
| Understanding Gender and Gender Identity | Having an understanding of gender and gender identity is important in today's society. While it feels natural to describe people using the terms we were taught since early childhood, the female-male binary no longer applies to everyone. In this video we'll discuss what gender identity is and provide some tips for respecting everyone's deeply held sense of self. | 0.2 | Intermediate |
| Understanding HIPAA | In LearnSmart's Understanding HIPAA Video Training, individuals associated with the health care industry will learn the rights and responsibilities of both patients and employees with regard to medical information -- and how it must be gathered, stored, and managed. In addition, this training details the regulations surrounding how covered entities store, process, and transfer information. | 4 | Intermediate |
| Understanding Moisture Intrusion and Its Impact on Mold Growth | The basic role of a building is to protect the indoors from the outdoors. That includes water intrusion. Water intrusion can happen in many ways and can have a detrimental effect on the structure and the people within. This course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth , as well as the proliferation of other micro-organisms. | 1 | Fundamental |
| Understanding Workers' Compensation for Employees (V15) | What would happen if you were injured in an accident on the job? Who would pay your medical bills and compensate you for time lost from work? In the state of Florida, not all employers are required to provide workers' compensation insurance. Workers need to understand their rights and know if they are covered in the event of a work-related accident. The purpose of this 1-hour interactive online course is to educate employees about their legal rights under workers' compensation. The class explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventative measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and maintain a healthy workforce. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Understanding Workers' Compensation for Employers V14 | Under federal and Florida State Law, employers have a legal obligation to provide workers' compensation benefits for workers injured on the job. Failure of eligible employers to provide compensation for injured workers may result in lawsuits and heavy fines, so employers need to know their rights and responsibilities. This 1-hour online course explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventive measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and control insurance costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Uninterruptible Power Supply (UPS) System Efficiency | "Uninterruptable Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime. Note: This course offers subtitles in Brazilian Portuguese and Spanish." | 1 | Fundamental |
| Universal Waste Storage and Handling | There are four main categories of universal waste: batteries, lamps, pesticides, and mercury-containing equipment. These special categories of hazardous wastes are meant to reduce the management burden and facilitate the recycling of universal wastes. This course will cover storage, container labeling, handling, and spill cleanup procedures for universal wastes. | 0.5 | Intermediate |
| Unstable, Reactive, and Energetic Compounds | Chemical reactions are part of our daily lives. From cooking in the kitchen, to driving a car, to handling chemicals at your workplace, these reactions are commonplace. Dangerously reactive liquids and solids can be extremely hazardous. Accidental or uncontrolled chemical reactions are important causes of severe personal injury and property damage. Unstable, Reactive, and Energetic Compounds course will explain the basic terminology relating to chemical hazard classes and reactivity. | 0.5 | Intermediate |
| Use of Ohm's and Kirchhoff's Laws in DC Circuits | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that commonly is referred to as Ohm's law. Ohm's law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. The letter I is used to represent current, E represents voltage, and R represents resistance. Using these symbols, Ohm's law can be expressed as I=E/R. Kirchhoff's two laws also reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. In this course, participants will learn how to use these laws when working with direct current (DC) circuits. | 1 | Intermediate |
| Using Electrical Test Equipment | Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be "qualified." A person who does not meet this requirement should work under the direct supervision of a qualified person. This interactive online course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. | 1 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Valves: Basic Types and Operation, Part 1 | In most industrial facilities, process systems handle many different types of fluids. The flow of these fluids through plant piping systems is controlled by valves. To keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. In this interactive online course, we will discuss the various uses of valves, their parts, and valve connections. | 0.5 | Intermediate |
| Valves: Basic Types and Operation, Part 2 | The purpose of this course is to provide participants with a general understanding of the basic types and operation of valves. The flow of fluids through plant piping systems is controlled by valves. In order to keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. At the end of this course, participants will have a better understanding of the types, purposes, and applications of various valves. | 1 | Intermediate |
| Valves: Electric and Hydraulic Actuators | This course is designed to introduce participants to various types of electric and hydraulic actuators that are used to control valves in process systems. After completing this course, participants should be able to describe the basic operation of solenoid actuators, motor-operated actuators, and various types of hydraulic actuators. They should also be able to explain the function of a pilot valve and describe problems associated with hydraulic actuators. | 2 | Intermediate |
| Valves: Introduction to Actuators | Some of the valves that are used to control the flow of fluids in process systems have to be opened, closed, or throttled frequently. Manually positioning these valves using handwheels or levers is not always practical. Instead of handwheels or levers, actuators are often used to position the valves. This module is designed to introduce participants to actuators in general and pneumatic actors in particular. | 1 | Intermediate |
| Variable Speed Drives: Common Applications | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. In addition, the motor and controller combination, the drive, is frequently integrated into an existing production process or system. This course will examine some of the common applications for VSDs. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 1 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 2 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Installation | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. This course will examine a typical VSD installation, how to get it running, and how to keep it running while making its operation and maintenance as trouble-free as possible. | 1 | Intermediate |
| Variable Speed Drives: Introduction to VSDs | Variable speed drives (VSDs) are used throughout the industry to electronically regulate the speed and the torque of motors. With nearly half the energy in the world consumed by rotating machinery, the applications for VSDs are enormous, and their use is spreading rapidly. When applied and installed properly and when operated and maintained correctly, VSDs can substantially reduce the power required for the work being done and can provide the precision control that is now demanded by modern industry throughout the world. | 1 | Intermediate |
| Variable Speed Drives: Programming AC Controllers | This course describes alternating current (AC) controller setup procedures, AC controller frequency options and other parameter settings, and AC controller I/O configuration. The course illustrates how to interpret AC controller fault monitoring, alarms, and diagnostics. Finally, the course explains flux vector programming. | 1 | Intermediate |
| Variable Speed Drives: Programming DC Controllers | Wherever variable speed drives (VSDs) are used, they must be programmed to meet the needs of the specific application. Sometimes this means little more than firing them up and letting them run, maybe just punching the drive up to the required speed. But more often it means a variety of settings must be programmed into the drive. This course will focus on programming the controllers for variable speed direct current (DC) motors. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 1 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 2 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: Systems and Integration | When variable speed drives (VSDs) are used in industrial applications, they usually are not used by themselves. Although single motors and single controllers are sometimes used in isolated applications, the more usual application is one in which many motors and many controllers are interlinked into a larger automated system that includes many types of processes. This course will examine the ways in which VSDs and automated systems are linked together. | 1 | Intermediate |
| Vehicle-Mounted Aerial Device Safety | Vehicle-mounted elevating and rotating work platforms (also called aerial lifts, aerial devices, and bucket trucks) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. This interactive online course will list the types and categories of vehicle-mounted aerial devices (VMADs) and their main components, discuss safe work practices when working with VMADs, requirements for owners, users, and operators, as well as inspection requirements for VMADs. | 0.75 | Intermediate |
| Violence in the Workplace | Every year in the U.S., there are an estimated 2 million reported cases of workplace violence. NIOSH defines workplace violence as any act or threat of physical violence, harassment, or intimidation that occurs in the workplace. It can be instigated by criminals, customers, co-workers, or someone you have a personal relationship with. This course will raise awareness of the consequences of workplace violence and describe how to recognize warning signs so you and your coworkers can avoid these dangerous situations. | 0.25 | Intermediate |

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Virginia 2017 NEC 3 Hour CE Program #1 | Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well. | 3 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #2 | | 3 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #3 | Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements. | 3 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #4 | Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables | 3 | Intermediate |
| Volatile Solvent Spill Response | “Spills involving volatile solvents are a unique class of spills. This is due to the fact that in addition to any damage and pollution directly caused by the spilled liquid, evaporation of a volatile solvent will contaminate the air in the vicinity with the gaseous form of the liquid.<br>Because the vapors from most volatile solvents are flammable and toxic to some degree, the response to this type of spill must take the presence of the vapor into consideration.” | 0.25 | Intermediate |
| Volt/Ohm/Amp Meters | Volts, ohms and amps are important characteristics of all electrical circuits. There are dedicated instruments for measuring each of these quantities, but it more is common to use a single meter that is capable of measuring all three. This interactive online course covers how to take voltage, amperage, and resistance measurements, as well as the precautions to take when making such electrical measurements. | 0.5 | Fundamental |
| Walking and Working Surfaces | Slips, trips, and falls constitute the majority of general industry accidents, second only to motor vehicle accidents. They cause 15% of all accidental deaths, and are third only to motor vehicles and violence as a cause of fatalities. The OSHA standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed and if appropriately applied, can reduce lost work time. This interactive online course details the OSHA standard in a practical format with easy to implement solutions to provide a workplace that is free from hazards to better protect the workplace and reduce unnecessary costs. | 0.5 | Intermediate |
| Warehouse and Loading Dock Safety | Covers hazards and safety guidelines associated with warehouses and loading docks, including personal protective equipment (PPE), importance of housekeeping, mobile equipment, driving safety, fire extinguishers, and emergency procedures. | 0.5 | Intermediate |
| Warning Signs and Labels (BBWSAL0CEN) | This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Washington Electrical Contractor 4 hour program #1 | This 4-hour course is formatted in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices tha | 4 | Intermediate |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Wastewater Treatment and Reclamation: Asset or Liability | Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and "throw it in the ocean" nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the "water" from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant. | 1 | Intermediate |
| Water Treatment Basics | "Water treatment affects our everyday lives, from the water we drink to the sewage we flush, from the wash water we discharge to the cooling water used in manufacturing and in buildings. This interactive online course will cover the basics of water treatment in large buildings and is directed toward the building manager or technician.Operation of cooling towers and boilers will be discussed, along with control of scaling, fouling, pH and bacteria that can lead to Legionnaires' disease." | 0.5 | Fundamental |
| Water-Based Fire Suppression Systems | With 3,000 deaths and 16,000 injured each year, fire continues to make its mark on society. In addition, about 100 firefighters each year die in the line of duty. Property losses due to fire reach almost $12 billion a year, and most of these deaths and losses are preventable. In this interactive, online course, you will learn the basic, but critical, aspects of water based fire suppression systems. This course will discuss deluge systems, preaction systems, dry pipe systems, water mist systems, standpipe systems, and fire hydrants. The information you gain from this course will enhance your ability to appreciate the challenges of the fire protection system designer, trying to integrate their system with other disciplines. Utilizing this real-life knowledge will ensure a safe and code compliant project regardless of your contribution to the project. | 1 | Fundamental |
| Welding Safety | Welding is a very effective workplace technique used to fuse or cut metal, though it is not without dangers. Knowing the hazards of welding and following the correct procedures will help prevent personal injury, fatalities, and property damage. This course will cover welding-specific personal protective equipment, arc and gas welding, brazing and soldering, as well as the hazards they present. Lastly, this course discusses safety procedures used to minimize the exposure to different welding hazards. | 0.5 | Intermediate |
| What's New in Excel 2019 | "Updates In Excel 2019 Optimize The Worlds Most Popular Spreadsheet For Modern Business Making It Easier To Draw, Add Graphics, Manipulate Text, and More!<br>The updated Microsoft Excel 2019 includes new tools and capabilities that can help regular users and new users alike." | 0.75 | Intermediate |
| What's New in PowerPoint 2019 | "Impress Your Peers with the Latest and Greatest Features of PowerPoint 2019! Microsofts latest release of PowerPoint 2019 packs quite a punch. With 3D models and vector graphics, your presentations can be more professional and visually pleasing than ever before. The new Morph transition and Zoom features can turn a boring slideshow into a guided tour. Updates to the Recording features make it easier than ever to create and share recorded presentations. Last but not least, with added features for Translation, Dictation, and Accessibility, PowerPoint is now truly a tool for everyone." | 1.25 | Intermediate |
| What's New in Word 2019 | "New Editing and Image Features Improve The Worlds Most Popular Document App. The new Microsoft Word 2019 includes a slew of new tools and capabilities that can help regular users and new users alike." | 1.25 | Intermediate |
| What's New in Adobe CC 2015? | Adobe Certified Expert Amy Roberts takes us through all the new features and updates in Adobe Creative Cloud 2015s Premiere Pro, After Effects, Adobe Stock, and Audition, with quick looks at new mobile collaboration tools Adobe Hue, Premiere Clip, and Adobe Color. | 1.5 | Intermediate |
| What's New in Office 2016? | "Learn how Office 2016 makes it easier than ever to save your work to the cloud, share and collaborate with others, and produce professional documents.<br>Microsoft Office 2016 is an evolutionary improvement that refines dozens of features and adds a few new tricks too. In this course Kelly Vandever and Jason Farr explore the improvements to Microsoft Office in 2016." | 1 | Intermediate |
| Wind Design Using ASCE 7-16 | Have you kept current with ASCE's building design provisions? This interactive online course will describe the wind design changes that have occurred in ASCE 7-16 and how those changes will affect the practice of wind design when the 2018 building codes are adopted by local jurisdictions or when practitioners begin to use the revised standard. | 2 | Intermediate |
| Windows 10 Essentials | This Course Is For People New To Windows 10 - Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. Windows 10 combines the best features of Windows 8 with a more traditional navigation structure and layout, plus some new modern benefits. | 1 | Fundamental |
| Windows 8.1 Essentials | "This Course Is For People New To Windows 8 Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality<br>When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. In fact, Windows 8 represents the biggest change in the Windows operating system since Windows 95." | 0.5 | Fundamental |
| Winning Proposals 1: Preliminary Steps & Planning Strategies | "Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Winning Proposals 2: Effective Design & Development | "Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams.Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |

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# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Winning Proposals 3: Components of a Successful Proposal | "Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You"ll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Winning Proposals 4 & 5: Final Considerations & Evaluations | "Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You"ll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings." | 1 | Fundamental |
| Wire Rope Basics | Wire ropes are used on machines that lift and move heavy loads because they are strong, durable, and resistant to abrasion. They are commonly used in many industrial applications such as wire rope slings, derricks, cranes, hoists, and many more. In this course, you will learn about the basic construction of a wire rope as well as the different core types, strand materials, and rope finishes available for wire ropes. You will also learn the meaning of lay and about different lay types. This course ends with a description of the different construction types, wire rope design compromises, and a wire ropes maximum working load. | 0.5 | Intermediate |
| Wire Rope Safety and Operation | Wire ropes are used on machines that lift and move heavy loads. Because of the potentially high loading on wire ropes, they can be one of the most dangerous pieces of equipment at a worksite. In this course, you will learn which personal protective equipment to wear while using wire ropes, safety guidelines for working with wire ropes, and how to recognize potential wire rope hazards. Because of the potential for accidents, knowing how to properly use and safely work around wire ropes is crucial to your safety and the safety of your co-workers. | 0.25 | Intermediate |
| Work Life Balance | Do you live to work or work to live? In this course you will explore your motivation and priorities, and discover how the answers to strategic questions can help you create a healthy rewarding balance between the activities in your life. Through interactive assignments and a rich multimedia process, this course will help you realign with your priorities and experience the life you desire. | 0.5 | Intermediate |
| Work Order Management: CMMS Basics | Did you know a CMMS system can be configured to notify management via smartphone or email, if there is an equipment breakdown at any time of the day or night? Computerized Maintenance Management Systems (CMMS) have been around for many years. They can offer many advantages when an organization is trying to systematize and standardize the maintenance activities related to that organization's assets. But that's not all a properly designed and utilized CMMS can do. This interactive online course covers the benefits of an effective CMMS, work types related to maintenance, reactive and breakdown maintenance, and the purpose of a problem code and a resolution code. | 0.5 | Fundamental |
| Work Order Management: Workflow Management | Did you know breakdowns and unplanned maintenance can cost as much as ten times the amount than that of a good preventive maintenance program would cost? Utilizing workflow management within a Computerized Maintenance Management System (CMMS), will result in higher department efficiency and better financial management. This interactive online course covers how to manage the maintenance workflow within an organization, utilizing an efficient CMMS. | 0.5 | Fundamental |
| Work Zone Driving Hazards | Work zones or construction zones are some of the most risky locations on any road. In the United States, a crash occurs in a work zone every 5 to 6 minutes. These crashes result in dozens of serious injuries every day and multiple fatalities each week. This course will identify why work zones are hazardous and describe strategies to reduce your risk of a crash in a work zone. | 0.25 | Intermediate |
| Work Zone Safety | A work zone is an area of roadway associated with construction, maintenance, or utility work activities. Work zones are typically marked by signs, channeling devices, pavement markings, and/or work vehicles. Because they are often adjacent to active roadways, work zone workers are exposed to significant risks. Motorists, cyclists, and pedestrians can also face significant risks. Roadways and work activities differ, and weather, traffic volumes, and local environments also vary, so a "one size fits" all approach to work zone safety is not appropriate. However, there are policies, procedures, and guidelines which do apply to all. These are covered in this course. | 0.5 | Intermediate |
| Worker Right to Know (RTK) | Workers have the right to know and understand the hazards presented by the chemicals they use and how to work with them safely. Employers must maintain a list of all chemicals on site and provide employees with safety data sheets, which contain detailed information about the chemical and its hazards. This module is designed to ensure workers know what information should be provided to them and to help them understand that information. It describes the requirements of the Right to Know Standard and each section of a safety data sheet. | 0.5 | Intermediate |
| Working Effectively with Building Officials and Inspectors | Who is an Authority Having Jurisdiction? How should you communicate with them? Anyone associated with building design and construction will eventually interact with a building official or inspector. This includes Fire Marshals, Health Departments, Planning Departments, local gas and electric companies and water and sewer departments. Having a positive and professional relationship will go a long way in creating a cost effective, timely and safe project. This interactive online course will present a number of techniques to use to ensure a productive outcome including: knowing the applicable codes, being professional, first impressions, understanding the role of the local AHJ, knowing when to appeal an unfavorable ruling, knowing when to accept an unfavorable ruling, and establishing your credentials. | 1 | Fundamental |
| Working Over or Near Water | Working over or near water can expose workers to a range of hazards, including injuries from falls, hypothermia, and drowning. This course discusses best practices for working over or near water, including the proper use of common types of personal flotation devices (PFDs). This course also offers information on what to do in man overboard (MOB) situations, including survival tactics and recovery practices. | 0.47 | Intermediate |
| Workplace Hazardous Materials Information System (WHMIS) | The Workplace Hazardous Material Information System (WHMIS) is a hazard communication system that ensures Canadian workers are provided with sufficient information to understand the hazards of the chemicals they may be exposed to in their workplace. WHMIS requires employers to communicate hazard information by labeling containers, providing safety data sheets, and training employees to recognize hazardous materials and how to protect themselves and their coworkers. This course provides an overview of WHMIS requirements. | 0.5 | Intermediate |

VectorSolutions™

# Facilities Management & Maintenance Complete (Continued)

| Title | Description | Hours | Level |
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| Worksite Safety 01: OSHA Safety Introduction | "The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 02: OSHA Electrical Safety | "OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 2 | Fundamental |
| Worksite Safety 03: OSHA Fall Protection | "Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR,Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some "do's" and "don'ts" for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 04: OSHA Struck-By & Caught-Between Accidents | ""Struck-by" and "caught-between" accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics.<br>OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1.5 | Fundamental |
| Worksite Safety 05: OSHA Personal Protective Equipment | "Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 06: OSHA Scaffolds | "An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 07: OSHA Cranes & Other Hoists | Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 08: OSHA Power Tools and Excavations | "It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 09: OSHA Materials Storage | "The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |
| Worksite Safety 10: OSHA Demolition | "Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard.<br>OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 1 | Fundamental |

| Facilities Management & Maintenance Complete (Continued) | | | |
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| **Title** | **Description** | **Hours** | **Level** |
| **Worksite Safety 11: OSHA Hazards in Communication** | "There are already more than 650,000 hazardous chemical products in circulation around any number of workplaces in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program." | 0.5 | Fundamental |
| **Writing in Plain Language** | "Write emails and documents that are read, understood, and acted on.<br>We are overwhelmed with information today—in both our personal and business lives. Sometimes it's better to get straight to the point, in a way that doesn't waste your reader's time yet doesn't compromise your professionalism either. This course teaches you how to use plain language to address your reader's needs.<br>What do they really need to know?<br>What do you want them to do?<br>We'll teach you how to think about your reader's purpose and to write for them so they get the message and your writing does its job." | 1.25 | Fundamental |
| **WSI - Groundskeeping Safety** | After a frightening incident, expert workplace investigators are called to crack the case. In the midst of the story, viewers will learn about the hazards of exposure to the various machinery and elements of outdoor work environments. In this unique video, emphasis is placed on working in the elements and how to recognize, prevent and handle heat stress and a variety of other outdoor situations. This landscaping safety video is designed to prevent complacency from entering into your landscaping training. | 0.25 | Fundamental |

# Industrial Complete

| Title | Description | Hours | Level |
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| 2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning | Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council. | 2 | Fundamental |
| 2015 International Building Code Essentials – Fire Safety | Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council. | 1 | Fundamental |
| 2015 International Building Code Essentials – Health Safety | For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council. | 1 | Fundamental |
| 2015 International Building Code Essentials – Life Safety | Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council. | 2 | Fundamental |
| 2015 International Building Code Essentials – Structural Safety | Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council. | 1 | Fundamental |
| 2015 International Fire Code Essentials – General Safety Precautions | How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council. | 2 | Fundamental |
| 2015 International Fire Code Essentials – Hazardous Materials | Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council. | 2 | Fundamental |
| 2015 International Fire Code Essentials – Site and Building Services | Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teachers you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council. | 2 | Fundamental |
| 2015 International Fire Code Essentials – Special Processes and Building Uses | Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teachers you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council. | 2 | Fundamental |
| 2015 International Fire Code® Essentials – Fire/ Life Safety Systems and Features | Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®. | 2 | Fundamental |
| 2015 International Fire Code®: Significant Changes | Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®. | 2 | Fundamental |
| 2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes | Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| 2017 NEC Changes: Communications Systems | Proper wiring of electrical systems is essential to protecting life and property. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables. | 1 | Intermediate |
| 2017 NEC Changes: Special Equipment | Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. | 1 | Intermediate |
| 2017 NEC Changes: A New Process and Five New Articles | The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. | 1 | Intermediate |
| 2017 NEC Changes: Appliances and Equipment | Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. | 1 | Intermediate |
| 2017 NEC Changes: Branch Circuit, Feeder and Services | Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well. | 2 | Intermediate |
| 2017 NEC Changes: Conductors and Wiring Methods | Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. We will discuss the listing requirements in the Chapter 3.6 section and the .30 sections for securing and supporting throughout chapter 3. We will also examine 336.10 Uses Permitted for (TC cable) or tray cable and 338.10(B)(4)(a) Uses Permitted for service entrance cable or (SE cable), and review 344.14 Dissimilar Metals in Rigid Metal Conduit Systems (RMC). Other topics covered in the course include 350.28 Trimming of Liquidtight Flexible Metal Conduit (LFMC), 358.10 Uses Permitted for EMT. 376.20 Conductors in Parallel for Metal Wireways, and 392.22(A), which covers the number of conductors in (cable trays). | 1 | Intermediate |
| 2017 NEC Changes: Enclosures and Boxes | Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. | 1 | Intermediate |
| 2017 NEC Changes: General Requirements | Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 1 | Intermediate |
| 2017 NEC Changes: Hazardous Locations | Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements. | 1 | Intermediate |
| 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding | Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. In this interactive, online course, we will discuss notable changes to the 2017 NEC. Such changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. | 1 | Intermediate |
| 2017 NEC Changes: Receptacles and Switches | How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. | 1 | Intermediate |
| 2017 NEC Changes: Special Occupancies | The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. | 1 | Intermediate |
| 2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy | This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 1 | Intermediate |

VectorSolutions

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| 2020 NEC® Changes: Branch Circuit GFCI Protection | Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210. | 1 | Intermediate |
| 2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures | This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units. | 1 | Intermediate |
| 2020 NEC® Changes: Devices, Lighting, and Gear | This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 1 | Intermediate |
| 2020 NEC® Changes: Equipment for General Use | This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. | 1 | Intermediate |
| 2020 NEC® Changes: Focus on Wiring Methods | This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. | 1 | Intermediate |
| 2020 NEC® Changes: General Requirements | The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space. | 1 | Intermediate |
| 2020 NEC® Changes: Overvoltage and Grounding & Bonding | This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. | 1 | Intermediate |
| 2020 NEC® Changes: Process Review and Updated Articles | This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems. | 1 | Intermediate |
| 2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems | Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources. | 2 | Intermediate |
| 2020 NEC® Changes: Special Equipment | Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on underfloor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring. | 1 | Intermediate |
| 2020 NEC® Changes: Special Occupancies | The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations. | 1 | Intermediate |
| 2020 NEC® Changes: Wiring and Protection | Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection. | 2 | Intermediate |
| 34.5 KV Rubber Glove Work | The 34.5 KV Rubber Glove Work course is designed to introduce participants to procedures and equipment associated with performing rubber glove work on 34.5 KV lines. To obtain maximum benefit from this course, participants should have a good understanding of overhead distribution systems. At the conclusion of the course, participants should be able to describe electrical hazards associated with working on 34.5 KV distribution lines; and describe how to select, use, and care for the equipment typically required for working on 34.5 KV lines. Participants should also be able to explain how this equipment and some general safety procedures are used to perform 34.5 KV rubber glove work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| 3-way Communication | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional 3-way Communication human performance tool and discover its guiding purpose of clear, concise communication and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| 5S Methodology | Is your workplace a mess? Tired of spending hours searching for the right tool? This course will teach you about the 5S methodology, which focuses on organizing and standardizing the workplace to increase efficiency and effectiveness. Its five principles, sorting, straightening, sweeping, standardizing and sustaining, will make you and your co-workers better prepared to accomplish all of your tasks while being safer and more efficient in the process. | 0.25 | Intermediate |
| 8-Hour HAZWOPER Refresher | This series of courses meets the 8-hour OSHA HAZWOPER annual refresher training requirement for workers at hazardous waste sites. While this set of courses is designed to meet OSHA's HAZWOPER annual refresher requirements, your employer must provide any other site-specific and job-specific training deemed necessary. This set of courses does NOT cover:Incident Review Requirements - To meet OSHA's HAZWOPER incident review requirement, your employer must provide incident review training and any other site-specific and job-specific training deemed necessary by your employer.Hands-On Training - Your employer is expected to provide hands-on training, have a qualified trainer available for questions, and determine what additional training is needed to satisfy your training program requirements. | 8 | Intermediate |
| A Better Construction Contract | This 2-hour online interactive course examines two types of Owner-Contractor agreements: (1) stipulated sum, and (2) cost plus a fee with a guaranteed maximum price (often called GMP) The use of general conditions with both types of contracts is assumed in this course and particular attention is paid to the general conditions as they constitute the bulk of the contract whether it is a stipulated sum or GMP type. This course assumes some familiarity with the AIA documents, the contractually defined roles of the Owner, Contractor, and Architect, and the interrelationship of the Contract Documents, such as the Agreement, General Conditions, and Drawings and Specifications. We will follow the organization of the AIA documents as a starting point. Consequently, the term architect will typically be employed, but the principles discussed in this course can apply to other design professionals as well. References to relevant sections of the AIA documents are included in parentheses throughout. As we review the two types of Owner-Contractor agreements, this course identifies major contract issues, performance problem areas, and definitions of important terms. Issues which are likely to cause conflict or generate disputes are identified. Subjects which often appear obscure to design professionals, such as insurance, are discussed.A test is included in at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| A Leaders Guide to Decision Making | Sometimes choices are tough. We second guess our decisions or stall making one to start with. In this Effective Leaders Guide for making decisions, learn the steps to make more strategic choices and to feel comfortable with the decisions you have made. Using application exercises and a rich multimedia process you will soon be more comfortable in your own skin and more effective with your choices by applying what you have learned in this foundational course. | 0.5 | Intermediate |
| A Manager's Guide to Performance Appraisals | This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for Goal Statements, Descriptions and Evaluation of Competencies, Self Assessment and more. There is a test included at the end of this course. | 1 | Intermediate |
| Above ground Storage Tanks, Part 1 | This course provides information about several types of above ground storage tanks, associated auxiliary equipment, and general safety concerns related to these tanks and the materials they contain. | 1 | Intermediate |
| Above ground Storage Tanks, Part 2 | Process facilities use above ground storage tanks to meet a variety of operating needs. Operators who work with these tanks need to know what their responsibilities are and how to carry them out safely. This course covers operator responsibilities in areas such as routine inspections, sampling, gauging, and material transfers. | 1 | Intermediate |
| Above ground Storage Tanks, Part 3 | Tank farm operators typically perform tasks such as gauging, sampling, and making material transfers on a daily basis. Other tasks are performed only periodically. One of these periodic tasks is taking a storage tank out of service and bringing it back in service. This course describes the basic steps for taking an above ground atmospheric tank out of service and putting it back in service. | 1 | Intermediate |
| AC Fundamentals Review | This course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be qualified. A person who does not meet this requirement should work under the direct supervision of a qualified person. | 1 | Intermediate |
| AC Generator Basics | A generator is a device that converts mechanical energy into electrical energy. AC generators are commonly used to provide electrical energy for a wide range of commercial, domestic, and industrial applications. AC generators vary considerably in size, from small ones like automobile generators, to large generators that can supply power needs for a large city.<br>The purpose of this training course is to focus on AC generators that are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts). | 1 | Intermediate |
| AC Generator Maintenance | The purpose of this course is to provide an overview of the operation and maintenance of large alternating current (AC) generators, which are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts). This course covers common AC generator maintenance tasks such as replacing brushes, performing overhauls, and conducting electrical tests. | 1 | Intermediate |
| AC Motor Basics | Electric motors provide the mechanical energy that is needed to operate a wide variety of equipment in an industrial facility. To make sure that the motors in their plant are operating properly, operators should be familiar with the fundamentals of motor operation and the basic operating characteristics of AC motors. In this course, the trainee will learn about the basic operation of an AC motor as well as its parts and functions. | 1 | Intermediate |
| AC Motor Controller Maintenance, Part 1 | This course introduces participants to AC motor controllers, which are devices, or groups of devices, that control the operation of alternating current (AC) motors. They can start, stop, or protect a motor; control its speed; and change its direction. By doing so, AC motor controllers make it possible to use motors more effectively in industrial operations. In most industrial facilities, electrical maintenance personnel are responsible for maintaining AC motor controllers and correcting any controller problems that arise. | 1 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| AC Motor Controller Maintenance, Part 2 | Alternating current (AC) motor controllers serve a vital function in industrial facilities: They control the operation of AC motors. Therefore, when a controller breaks down, it is essential for electrical maintenance personnel to know how to locate the cause of the controller malfunction and be able to make the necessary corrections. It is also important for electrical maintenance personnel to be able to maintain the AC motor controllers in their facilities so that they operate with maximum efficiency and a minimum number of breakdowns. This course deals specifically with troubleshooting and maintenance procedures for AC motor controllers. | 1 | Intermediate |
| AC Motor Operation and Types | DC, or direct current is the electricity that flows in a single direction within a circuit or motor. AC, or alternating current, is the electricity that flows back and forth. The main components of an AC induction motor are the rotor and the stator. The motor converts electrical energy to mechanical energy when the rotor is pulled by the fluctuating magnetic field in the stator. This course will discuss single-phase and three-phase motor construction and operation. | 0.25 | Intermediate |
| Access 2013: 01-Working with Databases in Access 2013 | Study the characteristics and components of a database, while learning the capabilities provided by Access 2013 to build and implement databases. You will also find discussions on the distinction between queries and forms, on how to update and delete records, on the process of adding records to labels, and on the different filtering options that can be used to view data. In the relational database section, you will focus on the difference between flat and relational databases, the rules that apply to building relational databases, how to identify entities and attributes as well as use database diagrams. Learn these foundational topics so that you can deepen your understanding of how to create and work with databases in Access 2013. This is the first course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 02-Creating, Modifying, and Managing Tables in Access 2013 | Databases can save you time and energy. They are also useful for managing large quantities of data. In this training, you will observe how to create them as you go through discussions on generating databases from a template, the Wizard, the old format, and manually. You will also spend time taking a closer look at database components, particularly tables, table relationships, and fields. In the field section, you will learn about what to do with unique values, testing a field, setting primary key fields, field sizes, field data types, setting default values, and changing data formats. Learn about how to work with each of these database elements in Access 2013. This is the second course in the Access 2013 (77-424) series. | 2.25 | Intermediate |
| Access 2013: 03-Working with Forms in Access 2013 | Take a closer look at forms as you focus on creating, enhancing, and formatting forms. In the form organization section, you will find presentations on tab modification, the way data sources are modified, and the steps to adding subforms. Some of the highlights from the formatting section include steps on applying themes and inserting images and backgrounds, how to sort records, and an overview of the printing layouts available. The navigation form section details the steps to creating navigation forms and how to format them. Overall, this course will introduce you to forms and teach you how to modify forms using Access 2013. This is the third course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 04-Working with Queries in Access 2013 | Learn the basics of queries as you look at the purpose of queries, how to add fields to queries, query modifications, working with multitable queries, and types of criteria in queries. There is also sections of this training dedicated to demonstrating how queries function. In the query calculation section, you will look at calculated fields, the Expression Builder, numeric and text calculation, and crosstab queries. The last section concentrates on action queries, which reviews how to use action queries, the steps to making table queries, how to update an action query, and append it. Take time to thoroughly explore queries so that you can use them to their fullest potential through Access 2013. This is the fourth course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Access 2013: 05-Sharing and Protecting Your Data in Access 2013 | Dive into making reports with Access 2013. They are the final piece to working with an Access database. There's also a section containing different tips for taking the Microsofts Access exam. The Protection section talks about protecting, splitting, merging, and encrypting a database. In the end, you will have a better understanding of how to use Access 2013 to create, modify, and print reports, as well as protect and maintain databases. With these skills, you will be equipped to work with reports and properly maintain databases. The final section of this course provides you with tips to help you successfully pass Microsofts 77-424 exam. This is the final course in the Access 2013 (77-424) series. | 2 | Intermediate |
| Accessibility by Building Type: Multi-Use Facilities | This one-hour course will address the design and construction of multi-use facilities using the requirements of the 2010 Americans with Disabilities Act (ADA) Title III Regulations Accessibility Guidelines - ADAAG, effective and mandatory for all such buildings and sites in the United States on and after the 15th of March 2012. You will experience a virtual tour of the newly renovated Texas A&M University - Memorial Student Center (MSC) in College Station, Texas by the State of Texas Registered Accessibility Specialist (RAS) of record - both exterior site and interior portions of the additions and renovations project.<br>This presentation will discuss the myriad accessibility issues that had to be met during design and construction and will address the above and beyond selection criteria used by the APA / TGCPD Accessibility Awards Program - a joint program between the Accessibility Professionals Association and the Texas Governor's Committee on People with Disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Intermediate |
| Accessibility by Building Type: Universal Residential Design | Universal Design is a term used to describe the idea of creating buildings, products, and spaces accessible to older adults, people with disabilities, and people without disabilities. The focus is on creating an all-inclusive environment usable by everyone, regardless of age or physical ability. Today's designers are challenged by the many rules and regulations in their commercial practice including the American's with Disabilities Act (ADA) and the Fair Housing Act (FHA). The application of Universal Design in architecture and construction allows homeowners to continue to live in homes that they love as their physical needs change. This interactive online course addresses why learning universal design considerations - from the initial design concepts through the life-cycle of the home - is necessary. This course will also assist designers and those in the construction industry in providing an educated and sensitive approach when creating design solutions to meet the everyday lifestyle challenges of the disabled. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education. | 1 | Fundamental |
| Accessible Routes: Getting In, Out, and Around | A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Fundamental |
| Active Shooter and Other Acts of Targeted Violence | Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders. | 1 | Fundamental |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Active Shooter Response | An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers. | 0.25 | Intermediate |
| ADA Compliance in Business | The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities. | 1.25 | Intermediate |
| ADA Guidelines 2010: Building Blocks | The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the Building Blocks of accessibility as established by the guidelines, including:<br>Ground and floor surfaces (302)<br>Changes in level (303)<br>Wheelchair turning space (304)<br>Clear floor space (305)<br>Knee and toe clearances (306)<br>Protruding objects (307)<br>Reach ranges (308)<br>Operable parts (309) | 1 | Intermediate |
| ADA Guidelines 2010: Communication Elements and Features | The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include: What is effective communication? What are auxiliary aids and services? When is a state or local government required to provide auxiliary aids and services? Who chooses the auxiliary aid or service that will be provided? This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: 701 General 702 Fire Alarm Systems 703 Signs 704 Telephones 705 Detectable Warnings 706 Assistive Listening Systems 707 Automatic Teller Machines and Fare Machines 708 Two-Way Communication Systems ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Fundamental |
| ADA Guidelines 2010: General Site and Building Elements | The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the General Site and Building Elements of accessibility as established by the guidelines, including: General (501)Parking Spaces (502)Passenger Loading Zones (503)Stairways (504)Handrails (505) | 1 | Intermediate |
| ADA Guidelines 2010: Plumbing Elements and Facilities | The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the Plumbing Elements and Facilities of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and Toilet Compartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and Clothes Dryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: https://codes.iccsafe.org/content/MAC2015/toc | 1 | Intermediate |
| Adobe Acrobat DC Essentials | Create, Manipulate, and Liberate your PDF Documents with Adobe Acrobat. In this Uniquely EngagingTM course from Bigger Brains you will learn to use Adobe Acrobat Pro DC to convert documents to PDF files, search within PDF documents, edit and markup PDF documents, and convert and optimize PDF files. Taught by 25-year IT veteran Chip Reaves, Adobe Acrobat DC Essentials will help beginners and experts get more from the latest version of the Adobe Acrobat solutions. | 3 | Fundamental |
| Adult Learning | People learn in a variety of different ways. That is why it is critical to understand the basics of adult learning when training people at work. This course explains how people learn and lists specific principles of adult learning. It also covers different learning styles and the importance of active learning, explains how information is stored in and later retrieved from the brain, and gives tips for aiding that process. | 0.25 | Intermediate |
| Advanced Management Skills | In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand. | 5 | Intermediate |
| Advanced Project Management: Advanced Project Risk Management | Project risk is based on a simple equation: Event Risk equals the Probability of an Event times the Consequences of the Event. As project managers we know this, either implicitly because we've studied and read about risk in projects or we know it from first-hand experience. We've also learned along the way that we cannot fully eliminate risk, only mitigate the risk and that there is no such thing as a risk free project or action. During this interactive online course on project risk management we will go beyond the fundamental truths of project risk and cover how decisions are made, delving into decision theory and decision making in the face of uncertainty; as well as exploring risk management through the four phases of Risk Identification, Risk Analysis, Risk Response, and Risk Mitigation and Control. | 2 | Advanced |
| Advanced Project Management: Advanced Project Scheduling | Without a full and complete schedule, the project manager will be unable to communicate the complete effort, in terms of cost and resources, necessary to deliver the project. Knowing scheduling techniques will better prepare you to make decisions about schedule development and give better direction to your project team about schedule performance. This interactive online course will teach you the importance of scheduling in contract fulfillment, as well as introductory concepts for scheduling contract provisions, the concepts of delays and claims, and methods for delay claim resolution. You will also learn about establishing a scheduling model, best practice principles, and the eight steps for developing a good schedule model. | 1 | Advanced |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Advanced Project Management: Converting Strategy Into Action | All strategic change in an organization, any organization, takes place through projects and programs. To ensure that the strategic change results in the desired outcomes, however, takes planning, thought, and focus. In short, to get effective strategic change you need to have an effective strategic plan. Through an effective strategic plan, you are better postured to ensure that the projects and programs that are implemented create the future envisioned for your organization, be it increased profit or manufacturing of a new product. This interactive, online course is intended to change that mindset by helping you understand that to generate the outcomes any organization intends, or desires, requires direction via an actionable strategic plan. The course is intended for any engineer, project or program manager, engineering manager or executive who wants to understand strategic planning via a simple process that will replace chance and luck with specific goals, objectives, and action initiatives. | 1 | Advanced |
| Advanced Project Management: Executing Complex Programs | In today's fast-paced, competitive, and dynamic environment, the ability for an organization or individual to successfully execute a program is severely challenged. This is because programs are complex, wrought with uncertainty, and ripe with ambiguity. Efforts to navigate the complexity of programs often result in the program manager simply expending more of their vital time to make sense of it all, but there are only so many hours in the week and regardless how many hours you invest, the program will still be complex. In this interactive online course, you're going to be introduced to the Program Management Competency Model, which was developed to assist organizations and individuals make sense of the complexity of programs by focusing energy on the development of specific skill sets that yield the biggest return on investment. The six performance and eight personal competencies highlight areas where the development of knowledge, skills, and experience will return the greatest rewards for both organizations and individuals. The biggest reward being the capability and capacity to better execute complex programs. | 1 | Advanced |
| Advanced Project Management: Integrated Project Delivery | Integrated Project Delivery is a construction delivery method that leverages a number of current trends to increase productivity and the speed of project delivery. This interactive online course will teach you about the importance of IPD's foundation of relational contracts, as well as the main ingredients that include a high-level of communications and collaboration and a no-fault work environment, from project charette through building commissioning. You will also learn about the roles that lean construction processes and building information modeling play in performing, as well as recognize that IPD has many of the traits of construction delivery systems that are compatible with green building certification systems | 2 | Advanced |
| Advanced Project Management: Managing Project Teams | Successful projects are not delivered through technical expertise alone. It takes the ability to manage and lead teams and people effectively. The most successful project managers know how to build and maintain an environment in which both teams and individuals are motivated to do their best work. Founded on a wide range of research and real-life experiences, this interactive online course will help you understand how to develop and sustain effective project teams. You will learn tools, techniques, and tips you can add to your toolbox of people-management skills, enabling you to improve performance for yourself, your team, and the individuals on your project team. | 1 | Advanced |
| Advanced Project Management: Project Management in a Dynamic Environment | This interactive, online course covers the nine principles that master project managers, and their teams, put into practice managing projects in a dynamic environment. This environment is one experienced by most, if not all, project managers. It's an environment that holds speed and uncertainty as two of its most relevant characteristics. Both of these characteristics can cause severe stress during project planning and execution, and can lead to project failure if the project manager doesn't develop the skills, knowledge, and leadership ability demanded in the dynamic environment of today's projects. Mastering these nine principles will help you develop the inward and outward orientation, the formal and informal procedures, and the high-touch and high-tech communications strategy that you will require to be an effective, master project manager on your dynamic projects. | 1 | Advanced |
| Advanced Project Management: Project Performance Management | To control a project and keep it on budget and schedule, you need to have a quantified sense of where the project is. How is it doing? Is it on time? Is it on budget? Are the deliverable's being delivered? Are the end users satisfied? To achieve this level of project performance assessment requires a deeper understanding of metrics and measures. During this interactive online course, you will go deeper than the Project Management Institute's Project Management Book of Knowledge® takes individuals in Earned Value Management. This course will also expand your understanding of metrics and Key Performance Indicators, which are essential tools and techniques project managers must develop to effectively conduct project performance measurement on today's complex projects. | 1 | Advanced |
| Advanced Project Management: Sustainability in Project Management | Confirming that sustainability concepts are designed into a project from the beginning ensures that project sponsors and owners receive the maximum value, either through reduced project costs or through reduced life cycle costs. This interactive online course will teach you the principles of sustainability and how you can use this basic knowledge to increase the value in the projects you manage. You will also learn about the effects of climate change on projects and how to properly address the risks that arise from climate change. Additionally you will learn how sustainability can be integrated into traditional project management by addressing each of PMI's five project management process groups and eleven knowledge areas. | 2 | Advanced |
| Advanced Project Management: The Power of Project Leadership | This course should look at project management and leadership, then go into the fundamental leadership mistakes made by project managers and how to remedy them. Throughout, actionable tips and recommendations should be provided to enhance the user's skill set in project leadership. The course is geared for active project practitioners with experience in managing projects and mid- to senior-level managers. The course will provide information that can be applied to current projects, allowing for introspection. New project managers, or those aspiring to lead projects, however can benefit from the course by learning about the skill set required by effective project leaders. | 1 | Advanced |
| Advanced Project Management: Understanding the Project, Program, and Portfolio Architecture | Project and construction managers are at the leading edge of delivering benefits to an organization. But how does one's efforts fit in the bigger picture? And why do you even need to know the bigger picture? This interactive, online course will define project, program and portfolio management, as well as explore the key differences and interactions. This course will also introduce you to the concept of benefits realization management and how the project, program, and portfolio hierarchy can be used to bring strategy to life and ensure more successful projects.<br>This course will help professionals both new to, and experienced in, project management. Whether you're new to project management, or have been practicing it for some time, understanding the hierarchy of project, program and portfolio management will help you take your skills to the next level. | 1 | Advanced |
| Advanced Rigging - Transmission & Distribution | The Advanced Rigging course is designed to familiarize participants with the various types of weights and tensions associated with rigging in line work. The procedures and concepts presented assume a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to explain the difference between static force loads and dynamic force loads, and how to determine the weight of each type of load. Participants should also be able to explain line tension, bisect tension, and guy tension, and they should be able to determine each type of tension for a given job. In addition, participants should be able to define the term safety factor in terms of rigging, and they should be able to use a safety factor to plan safe rigging. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Advanced Rigging, Part 1 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on equipment used for lifting loads that are heavy, bulky, or hard to balance. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Advanced Rigging, Part 2 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on the techniques used for lifting loads that are heavy, bulky, or hard to balance. | 1 | Intermediate |
| AEC Success: 7 Steps for Using LinkedIn® Effectively | LinkedIn® is an avenue you can use to help you build your reputation in your field and become better at marketing and business development. This interactive online course will teach you ten action steps to take to build a strong LinkedIn® profile. Additionally you will learn who you should connect with on LinkedIn® to maximize your exposure. You will also learn the do's and don'ts of maximizing your usage in LinkedIn® groups. | 0.5 | Fundamental |
| AEC Success: Business Development and Sales | Everyone lives by selling something. Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action. | 1 | Fundamental |
| AEC Success: Conflict Resolution in the Workplace | Team projects often result in conflicts that have to be resolved between different parties. Learning to resolve a conflict is a very valuable skill that can be used in all endeavors of business and life. This interactive online course will teach you five strategies for dealing with conflicts. Additionally you will learn two core skill that are necessary to successfully resolve conflicts. You will also learn about emotional awareness and how it can help you in certain situations. | 1 | Fundamental |
| AEC Success: Designing Presentation Visual Aids | Whether you're presenting at a conference or at a lunch and learn, visual aids can be a powerful tool to catch and hold your audience's attention and reinforce the message you are trying to get across. This interactive online course will outline different types of visual aids and how to use them effectively. Additionally, you will be provided with strategies on how to effectively build a slide deck that will powerfully transmit your message to the audience in an engaging way. Attention spans are low in today's world, but after this session, you'll have the tools needed to hold attention with eye-catching visual aids. | 0.5 | Fundamental |
| AEC Success: Effective Decision Making | Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home. | 1 | Fundamental |
| AEC Success: Five Steps to Effective E-mail Management | Poor email management can kill productivity and cause you to be stressed. Implementing a proper email system will help you be more productive, more billable, and give you more time to do deep meaningful work. This interactive online course will teach you email processing and management steps to help you simplify your email filing system. You will also learn 7 steps to writing more productive emails. | 0.5 | Fundamental |
| AEC Success: How to Become a Top-Notch Industry Leader | Are you a positive powerful leader? Most engineers and other technical professionals strive to become a manager and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift. | 1 | Fundamental |
| AEC Success: How to Communicate and Present Effectively | Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator. | 1 | Fundamental |
| AEC Success: How to Create a Focused, Productive and Low Stress Career and Life | Being unorganized can lead to a stressful and less productive career and life. This interactive online course will teach you how to improve time management efforts to bring more balance and focus to your career and life. You will learn three specific rules for effective time management and better work life balance. You will also learn seven things you can do to increase your ability to focus. | 0.5 | Fundamental |
| AEC Success: How to Find and/or Become a Mentor | A mentor is someone who can guide you toward reaching your career goals and ultimately your definition of success. This interactive online course will teach you how to find a mentor using five specific considerations. Additionally you will learn how to become a mentor and then benefits mentoring will have on your career success. You will also learn strategies for getting the most out of the mentoring relationship. | 0.5 | Fundamental |
| AEC Success: Improving Organization and Productivity | In this day and age, it is becoming nearly impossible to focus and be productive because people are being pulled in so many different directions. Recognizing high leverage tasks can help you become organized and productive as you prepare and plan your day. In this interactive, online course, you'll be given actionable strategies for increasing your productivity on a day-to-day basis including tips for effective email management. | 0.5 | Fundamental |
| AEC Success: Networking and Relationship Building | Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come. | 1 | Fundamental |
| AEC Success: Obtaining the Right Credentials in Your Career | Professionals of all ages are faced with career and life changing decisions every day and in order to create an extraordinary A/E/C career you must make the right decisions for you, while supporting the organization you work for and the clients you serve. This interactive online course will walk you through a goal setting process, that you can utilize to help make critical career decisions and will also serve as a credential planning process. Furthermore, at the end of this course, using the process provided you will be able to identify the right credentials for you, so you can start to pursue them and change the course of your career forever. | 0.5 | Fundamental |
| AEC Success: Strategies for a Successful Interview | We have all been through the interview process, either through applying for a job/promotion or chasing a project. We also often follow established templates that almost everyone uses which result in eye rolling by the interviewers. This online interactive course can help you get out of this rut so that you can develop a fresh look for your next interview in pursuit of a project. You will learn what to research before the interview, how to observe and analyze the environment of the interview location, a strategic sitting layout and how to use all of this to your advantage prior to the interview. This course will show you how to manage the pace of the interview and how to answer tough questions. Finally, you'll learn how to elegantly end the interview and which follow-up activities will help you standout amongst the thundering herd. Learn what to do and what NOT to do to subtly manage your client interview to ensure you and your team members shine! | 1 | Fundamental |
| AEC Success: Time Management and Billable Hours | Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Agile Project Management: 01 - Agile Series Overview | What comes to your mind when you think Agile? You're probably thinking about the ability to move quickly and easily, and you would be right. Now apply that definition in the context of project management. An Agile project manager is someone who can move quickly, adapt to change, and make smart adjustments on the fly. This courses primary purpose is to increase your knowledge of the principles and processes involved in the Agile method of project management as organized and suggested by the Project Management Institute. We will spend a lot of time discussing what you need to know and the knowledge required or at least expected to be known by most agile practitioners. The courses in this series are loosely based on the domains of: Agile principles and mindset, Value driven delivery, Stakeholder engagement, Boosting team performance practices, Adaptive planning, Problem detection and resolution, Continuous improvement. Upon completion of this series you will be well versed in the methodologies and principles of Agile project management and effectively prepared to sit for the PMI-ACP exam from PMI. | 0.25 | Intermediate |
| Agile Project Management: 02 - Traditional vs. Agile Project Management | The idea of performing project management work in an agile way did not magically appear in the last couple of years. But, what is an agile project management? This course examines what it is and the difference between agile and traditional project management. | 0.75 | Intermediate |
| Agile Project Management: 03 - Agile Manifesto Principles 1 - 6 | Since the Agile Manifesto serves as the guiding principle of the entire agile project management collective, it also holds a prominent part in the Project Management Institute-Agile Certified Practitioner exam. In this course, we will explore the first six principles of the manifesto in depth. | 0.75 | Intermediate |
| Agile Project Management: 04 - Agile Manifesto Principles 7-12 | At the root of the modern structure of agile project management is the Agile Manifesto, and it should be used as a guide to the philosophy of the agile project management approach. This course focuses on the last six agile principles as well as the Declaration of Interdependence. | 0.5 | Intermediate |
| Agile Project Management: 05 - Value Driven Project Management | To select the best project to work on, you must assess what is to be gained from its efforts and at what costs. Benefits are best placed in the perspective of the customer or business value. This course covers value-driven development. In this, we discuss how to determine the amount of time and effort to spend on a project. It also discusses how to determine when to expend time and resources on any one or more features, functions, procedures, parts, and/or elements of that project over others. This course makes clear what the value is and how utilizing agile project management approaches can deliver to that value. | 1.25 | Intermediate |
| Agile Project Management: 06 - Setting Vision and Prioritization in Agile Projects | Agile projects are selected based on certain aspects and considerations. Prioritization and planning is where most of the effort and time is spent in agile project management. This course delves deeper into prioritization and risk management in agile project management. We expand on the prioritization of the features and functions of our selected projects, building out our products vision and business case for development, and laying the foundation for our products plan of fulfillment. Also, greater detail and care is spent on the tools, techniques, and other concepts surrounding the planning at all the various levels of an agile project. | 0.75 | Intermediate |
| Agile Project Management: 07 - Scrum and Extreme Programming (XP) Methodologies | This course is about the agile methods and frameworks of Scrum and Extreme Programming. These are, arguably, the two most well known of the agile project management methodologies. In this course, we cover the basics, principles, and practices of both methods. | 1.5 | Intermediate |
| Agile Project Management: 08 - Other Less-Common Agile Methodologies | In this course, we explore some of the lesser known agile project management approaches beyond the popular ones of scrum and extreme programming. Their lack in popularity right now does not mean they will always be lesser known. They may become the go to approach in the future if certain industries or subsets of the agile community adopt them more fully and evangelize their exalts. | 1 | Intermediate |
| Agile Project Management: 09 - Planning Agile Projects | Planning in agile projects differs from waterfall projects or other more traditional projects in the aspect of adapting to the needs and expectations of the stakeholders and the product development in a flexible manner. This encourages changes and course corrections as often as necessary, and makes planning essential to a projects success. This course examines how to best plan an agile project, the differences between the various levels of project planning, and useful tools to aid in the planning. | 1.25 | Intermediate |
| Agile Project Management: 10 - Estimating Agile Projects | Estimating the work, effort, and time activities will take during a project is a very challenging exercise. However, its also a very important and crucial piece to any project management. How estimation works in agile projects is slightly different than in traditional projects or daily operations. The circumstances and variables are more varied in agile projects than in traditional project needs. This course aims to explore those differences, the strategies at play in agile estimation, and the various tools and techniques any agile practitioner whether that be an agile project manager, agile coach, ScrumMaster, or agile development team member should be aware of. | 1.25 | Intermediate |
| Agile Project Management: 11 - Implementing Agile Projects | A good agile project manager should be knowledgeable about the various tools and techniques of the agile project management trade. They should also be versatile enough to know when to apply the documented tools and techniques in their literal or highly structured manners and when to bend or accommodate them to the requests of the agile team. This course is aimed for those who may be taking on the role of agile project manager, agile coach, agile practitioner, agile mentor, or ScrumMaster. We discuss the basics of each type of agile manager, their similarities and differences, how to use the tools and techniques available, and what role agile management has in an agile project. | 1 | Intermediate |
| Agile Project Management: 12 - Team Formation and Creating an Agile Environment | There is a lot to learn and be aware of when working with agile project teams. Agile project team formation and empowerment requires setting up self-organizing and self-empowered groups of skilled and supported individuals. This course focuses on how teams are most effectively formed, how they are supported, and how those teams can more effectively work together and be continuously successful. | 1.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Agile Project Management: 13 - Communication in Agile Projects | There are many challenges and potential pitfalls of communication throughout the duration of a project. Communication is absolutely critical to any team activity, and agile project management is a team activity. The success and failure of an agile project can certainly rest on the proper or improper use of communication. This course covers the many aspects of communication in an agile project. The general goals of this course are being aware of the various modes of communication, the importance of communication in an agile project, and how to best apply the appropriate tools and techniques surrounding communication to best support your project. | 1.5 | Intermediate |
| Agile Project Management: 14 - Increasing Agile Stakeholder Engagement | Project stakeholders are all those affected by the project, not just those who fund the project or those we are building the project for. The product owner is a stakeholder, but he or she is not the one using the product. A bigger set of stakeholders are the end users. Even beyond that, there are many other project stakeholders. This course covers who the stakeholders are, how to consider their needs as the project progresses, and several tools and techniques that help in incorporating the stakeholders needs and wants. | 1 | Intermediate |
| Agile Project Management: 15 - Soft Skills and Servant Leadership in Agile Projects | An agile project manager ensures the project and its components can run. He or she ensures that everything that is needed is taken care of and puts the agile project management framework and processes in place. In essence, a project manager leads by example. In this course, we explore how a good agile project manager utilizes soft skills and leadership in order to inspire team members, keep the lines of communication open, and deliver an excellent product. | 1 | Intermediate |
| Agile Project Management: 16 - Testing and Risk Management in Agile Projects | This course focuses on the process of managing potential threats and other forms of risks throughout the agile projects lifecycle. We cover how to test and validate in order to gather information to improve and adapt the processes of agile project management. We continue talking about the power of adaptive planning in agile projects and discuss how to optimize value delivery by selecting and tailoring the teams processes based on experiences and project feedback. | 1 | Intermediate |
| Agile Project Management: 17 - Problem Detection, Metrics, and Resolution in Agile Projects | There are always going to be problems in agile projects. Some will be major and some will be incredibly minor. Being able to detect, forecast, and address the problems especially any small problems before they become big is key to successful agile project management and practice. In this course, we concentrate on the needs and methods around the detection of problems, errors, issues, and other things deemed outside our acceptable realm of control. We also examine a few of the common tools, measurements, techniques, and other diagnostics that support the teams efforts to detect and resolve problems within the project. | 1 | Intermediate |
| Agile Project Management: 18 - Quality and Earned Value Management in Agile Projects | Agile project quality is a discipline that is built in and incorporated in all that is done from considering, to planning, to executing, to testing, to delivering, and every minute in between. Quality is a mindset and a practice throughout the agile project lifecycle. In this course, we concentrate on agile project quality and the role it plays in the gains or value. As we talk about the standards and the expected levels of quality of the products, we discuss the skills needed in order to measure quality. | 1.25 | Intermediate |
| Agile Project Management: 19 - Continuous Improvement for Management and Project Agility | No agile project is perfect. No person on an agile team is perfect. There is always room for improvement and growth. This course is about the constant striving for improvement. In this course, we explore the various methods and concepts surrounding the need and ability to continually improve an agile project, ourselves, our teams, our culture, our organization, our agile project management, and other areas, whether directly or indirectly. | 1 | Intermediate |
| Agile Project Management: 20 - PMI Code of Conduct in Agile Management | The discipline of agile project management does not have a particular governing body, standardization, or a certain entity that is the gold standard for certification in this field. The Project Management Institute has made tremendous inroads in adding some formality in this regard by collecting the best practices, concepts, approaches, and terms. This final course in the Agile series discusses the PMI Code of Conduct, which is essentially a list of values that should be found within any project. | 0.5 | Intermediate |
| Aliphatic Chemistry | This course offers a condensed and simplified lesson on the characteristics and chemical behavior of the aliphatic branch of organic chemistry. The physical properties, molecular structure, and typical reactions of alkanes, alkenes, and alkynes are discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Alkylation Operations | High-octane gasoline is one of the most important and profitable refinery products, and the main function of many refinery units is to make products for gasoline blending. In the final blend, one of the cleanest burning components, and the component with the highest octane, is often alkylate; the end product of an alkylation unit. | 1 | Intermediate |
| Alternating Current | Alternating Current is a course designed to familiarize participants with how alternating current (AC) circuits work, and how voltage and current can change depending on the load, the source, and how the load and source are connected together. After completing this course, participants should be able to determine current and voltage values for an AC sine wave; explain how resistance, inductance, and capacitance affect AC circuits; explain how to calculate power in AC circuits and how to adjust power by correctly selecting and sizing circuit components; and describe the construction, operation, and use of various types of transformers. | 2 | Intermediate |
| American Chemistry Council's Responsible Care Program | In this interactive online course, you will be introduced to the program requirements for the American Chemistry Council Responsible Care Program. In addition, you will evaluate the global EHS initiatives that have been affected by member companies that participate in the Responsible Care Program. Finally, the inspection and reporting requirements will be explored regarding participation in the program. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| An Effective Leader's Guide to Time Management | Ever wonder how some people get more done in the same 24 hours than you do? Gain the skills to up your productivity and own your time with this effective leaders guide to time management. This course uses application exercises and a rich multi-media process to integrate effective time management skills into your daily practices. This results in increased productivity, effectiveness, and overall desired outcomes. | 0.5 | Intermediate |
| An Entrepreneur's Guide to Networking | Facebook, LinkedIn, Twitter, professional associations, other departments, competitors the opportunities for networking, both social and in person, are endless. Thus it is vital to learn to be strategic about your networking efforts in order to build the best relationships and truly get the results you want. Through application exercises and a rich multimedia process, this course will teach you what you need to know and do to be a strategic and effective 'networker'. | 0.5 | Intermediate |
| An Introduction to Fitwel® | What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®<br>. | 2 | Fundamental |
| Analysis of Boiler Efficiency | This course explains how air heaters and preheaters affect boiler efficiency and heat rate. After completing this course, participants should be able to identify boiler parameters commonly associated with air heaters and preheaters and explain how boiler efficiency and heat rate are affected by changes in those parameters. They should also be able to explain how problems with air heaters and preheaters can be recognized and corrected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Analysis of Turbine Efficiency | This course explain how a typical turbine is designed to convert energy to work and how turbine efficiency is affected by problems with internal turbine components. After completing this course, participants should have an understanding of how internal components, particularly the turbine blades, affect turbine efficiency and heat rate. They should also be able to identify ways to recognize and correct efficiency problems associated with a turbine. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Analytical Procedures | This course describes the major tasks associated with performing analytical procedures in a chemical lab. It discusses qualitative and quantitative analyses, accuracy and precision, validation of procedures, and the use of standards. It describes the following basic steps for performing an analysis: handling samples; choosing and performing appropriate analytical procedures; and collecting and reporting data, including calculating percent recovery and relative percent difference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Anatomy of Construction Defects | Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that. | 2 | Intermediate |
| Anti-Harassment Training for All Employees - California | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for the state of California. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to all workers by Jan. 1, 2020, and every two years thereafter. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy. | 1 | Intermediate |
| Anti-Harassment Training for All Employees - Maine | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for Maine. | 1 | Intermediate |
| Anti-Harassment Training for All Employees - New York City and State | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for all of New York, including New York City. | 1.5 | Intermediate |
| Anti-Harassment Training for All Employees - Non-State Specific | Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, will help foster an atmosphere of respect. Compliant for use in IL | 1 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Anti-Harassment Training for Supervisors and Managers - California | Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in California this course includes specific references to California laws regarding Sexual Harassment training. This course is designed to be compliant with California standards. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to supervisory personnel on prevention of sexual harassment. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy. | 2 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - Connecticut | Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in Connecticut this course includes specific references to Connecticut laws regarding Sexual Harassment training. This course is designed to comply with Connecticut standards. | 2 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - New York City and State | Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in New York this course includes specific references to New York requirements regarding Sexual Harassment reporting. This course is designed to be compliant with New York standards. This course is specifically for Managers and Supervisors that are currently working or have the potential to work in New York State and New York City. | 1 | Fundamental |
| Anti-Harassment Training for Supervisors and Managers - Non-State Specific | Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. This course is meant to be taken for general anti-harassment training and does not discuss the standards and/or regulations of any specific state. | 1 | Fundamental |
| Applied Vibration Analysis: Analyzing Bearing Vibrations | In this interactive online course you will apply the analysis process to diagnose developing bearing problems. We almost have to start with bearings for one very simple reason. Every piece of equipment we'll analyze - pumps, gearboxes, and all the rest will have at least one bearing somewhere in or near them. Diagnosing bearing problems in different types of equipment will be a fundamental part of your work as a vibration analyst. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Fan Vibrations | For many manufacturing plants, process industries, and utilities fan maintenance is a way of life. In this interactive online course we'll apply the vibration analysis process to diagnose developing fan problems. And there are two types of fans we'll examine. First the overhung type, in which the fan element or blade assembly is mounted on the end of a rotating shaft. And second, the center hung type, in which the shaft extends through the element and is supported on both sides. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Gear Vibrations | Analyzing vibration really means interpreting vibration, and nowhere is this point better illustrated than in the analysis of gear boxes. They are literally sealed metal boxes but, with modern equipment, an experienced vibration analyst can almost peer inside the box and evaluate the condition of internal components. That's what we'll do in this interactive online course - apply the analysis process to diagnose developing gear box problems. To help get you there we'll show you how to diagnose a gear mesh problem in a single reduction gear box, a gear mesh problem in a double reduction gear box, a bearing problem in a double reduction gear box and some other common gear problem signatures. | 0.5 | Fundamental |
| Applied Vibration Analysis: Analyzing Motor Vibrations | Analyzing motor vibrations should be easy enough - right? After all, the only moving part is the shaft and rotor assembly. Most component equipment: gear boxes, fans, and pumps are most often driven by electric motors. In this course we'll apply the analysis process to diagnose most developing motor problems. Our case histories will be taken from 2 types of motors: DC motors and AC induction motors. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Pump Vibrations | It's hard to imagine an industrial facility of any size without at least one pump. In this interactive online course we'll apply the analysis process, which is basic to vibration analysis, to diagnose developing pump problems. Also, we'll learn about an additional analysis tool - Trend analysis. | 0.5 | Intermediate |
| Applied Vibration Analysis: Analyzing Spectral Data | Do you know the process and procedure for analyzing vibration spectral data? In this interactive online course, we present a critical phase in your applied vibration analysis training. Remember that the goal of this series of courses is for you to learn to diagnosis developing equipment problems by analyzing the vibration spectrum. In this course, you'll learn a 6-step process for analyzing spectral data. This may be the most important course in the series. | 0.5 | Intermediate |
| Applied Vibration Analysis: Collecting Spectral Data | The job of the vibration analyst can be broken into two primary functions, collecting spectral data and analyzing spectral data. In this interactive online course you'll learn to collect spectral data safely, accurately, and consistently. Everything begins with the data you collect, only it probably won't be just you. Any number of people might collect data, so consistent procedures and sound fundamentals are essential. To help you develop them we'll offer some basic guidance for establishing a database. We'll review some common transducer or probe designs and discuss selecting the right transducer for your equipment. We'll recommend some safety practices that should become second nature to you. We'll identify good work practices for collecting data. And we'll evaluate the amplitude of vibration when you find it. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Applied Vibration Analysis: Introduction | When you get complaints about vibration in a piece of equipment - do you know what to do? In this interactive online course, you will be introduced to the principles of machine vibration. We'll examine what machine vibration is. We'll define some common terms associated with vibration and identify the causes of vibration in different types of machinery, primarily machines with rotating components. We'll also look at some instruments used to detect vibration. In addition you will receive some guidelines to follow when collecting vibration data. | 1 | Intermediate |
| Appraising Performance | Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment. | 3.5 | Intermediate |
| Arc Welding Basics | Arc welding is a process for joining pieces of metal. In this process, the high temperature produced by an electric arc near the surface of the metal causes the metal in the pieces to melt, and upon cooling, to fuse together.<br>This course discusses the basic components and the three major types of arc welding. This course also illustrates different joint types, proper welding techniques, common weld defects, and finally the PPE that should be worn while arc welding. | 0.43 | Intermediate |
| Arc Welding Processes | Arc welding is a process for joining pieces of metal. In this process, the high temperature produced by an electric arc near the surface of the metal causes the metal in the pieces to be joined to melt, and upon cooling, to fuse together.<br>This course discusses the most common types of arc welding including shielded metal arc welding, gas metal arc welding, and gas tungsten arc welding. This course also illustrates each type and describes the variables and equipment used in each type. | 0.5 | Intermediate |
| "Are You Ready?" Checklist | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Are You Ready? Checklist human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplaceVector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Aromatic Chemistry | This course is designed to introduce participants to aromatic compounds and the reactions associated with them. It describes the structures of benzene and benzene-derived compounds and explains how aromatic compounds are named. It also covers various types of benzene reactions and identifies typical compounds produced through benzene reactions. In addition, it covers aryl halides, phenols, ethers, aldehydes, ketones, and arenes. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Ash Handling | Ash is the solid residue that is produced when coal is burned. To keep a coal-fired plant operating, ash must be collected, removed from the plant, and properly disposed of. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| ASHRAE 100: Energy Efficiency in Existing Buildings | The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock. | 2 | Advanced |
| ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality | ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance.<br>This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55). | 1 | Fundamental |
| ASHRAE Essentials: 55-2017 – Thermal Environmental Conditions for Human Occupancy | This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners. | 1 | Fundamental |
| ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings | This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners. | 1 | Fundamental |
| ASHRAE Guideline 13-2014, Building Automation Systems | Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems. | 2 | Fundamental |
| Assessing Occupational Exposure | Assessing occupational exposures is a process for managing the health risks associated with workplace exposures to chemical, physical, and biological agents. This interactive, online course will cover ways to assess and prioritize exposures into exposure control categories to focus resources on the highest risks, differentiate acceptable from unacceptable exposures, and discuss ways to control unacceptable exposures. This course will introduce comprehensive strategies to best manage risk and resources. | 0.5 | Intermediate |
| Asset Condition Management: Alignment and Balancing Training | Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Asset Condition Management: Motor Testing | Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors. | 1 | Intermediate |
| Asset Condition Management: Setting Up an Oil Analysis Program | Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel. | 0.5 | Intermediate |
| Asset Condition Management: Vibration Analysis Training | Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring. | 1 | Intermediate |
| Atomic Absorption | In this course, participants are introduced to atomic absorption analysis. The course explains the basic principles of atomic absorption and introduces equipment used to conduct atomic absorption measurements for both conventional, or flame, and graphite furnace atomic absorption. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Auxiliary Equipment | Auxiliary equipment is used to perform support operations in a typical coal handling system. Support operations, such as weighing coal and collecting coal samples, help provide important information for coal handling and other plant operations. This training program explains why coal is weighed and sampled, and describes some of the auxiliary equipment used to perform these jobs. It also covers some of the preventative maintenance tasks that coal handlers may perform to keep auxiliary equipment in good working condition. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Auxiliary Vessels | Process facilities contain a number of process units, and each process unit consists of one or more process systems. These process systems are made up of many different types of components, including various types of process vessels. A process operator must be familiar with the functions and features of all the different types of process vessels. This course focuses on a general group of vessels that can be referred to as auxiliary vessels. | 1 | Intermediate |
| Azeotropic, Extractive, and Vacuum Columns | Distillation is an important process in many plants. It is used to separate mixtures into various components. In some plants, distillation may be the final step in processing a material so that it meets product specifications. The heart of a distillation process is a distillation column, or tower. Depending on the needs of the plant, a distillation process may include conventional, azeotropic, extractive, or vacuum columns. | 1 | Intermediate |
| Backhoe & Front End Loader Safety | Backhoes are one of the most common types of construction equipment found on jobsites. Backhoe loaders can dig, scrape and load material. With special attachments they can perform virtually any required task. Backhoe loaders are complicated machines and it is important your employees know and understand the equipment capabilities. This program covers the maintenance and operation of a backhoe with emphasis on safety. This program contains both an English & Spanish version on the DVD and also comes with a Leaders Guide, PowerPoint presentation, end of course quiz, attendance log, and completion certificate. | 0.25 | Fundamental |
| Baler Safety | Cardboard balers are a common sight in many retail stores. There are many different types of balers that may operate in slightly different ways. However, what they all have in common are safety hazards and the need to follow safe operating procedures. This program is designed to train employees how to operate a baler safely. Topics covered also include: Basic safety rules for baler usePre-use inspectionStandard operating procedures Safely removing the baled cardboard | 0.15 | Fundamental |
| Barge Unloading | Coal barges are generally loaded with coal dumped from trains. The loaded barges are taken to plants by tugboats, which also take the empty barges away to be reloaded. This course focuses on the operations involved in handling barges from the time they arrive at a plant until the empty barges are taken away. It examines in detail the components and operation of two types of barge unloaders: a bucket elevator unloader and a clamshell, or traveling tower, unloader. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Business Finance | Confused By Debits, Credits, Balance Sheets, And Other Business Accounting Terms?<br>This Is The Course For You! Learn the basic accounting and finance concepts you need to be successful in modern business. | 1 | Fundamental |
| Basic Chemical Plant Operations | Chemical plants are groups of systems that work together to process raw materials and produce finished products. Participants will learn about the types of systems, equipment, and instrumentation commonly found in chemical plants; and about their operating and safety procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Electricity Review | This course introduces the fundamental principles of electrical theory as applied to electrical circuits and devices such as transformers, inductors, and capacitors. The general topics covered in this course include the nature of electricity, basic electrical quantities and their units of measurement, electrical circuits, and electromagnetism. | 1 | Intermediate |
| Basic Electronics, Part 1 | In the study of electronics, knowledge of fundamental electrical relationships provides the foundation for developing advanced concepts and skills. This course covers the basic electrical quantities of current, voltage, resistance, and inductance that are universal to all circuits. An understanding of how electronic circuits work, and how they can be manipulated and repaired, depends on familiarity with these basic quantities and the relationships between them. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Electronics, Part 2 | In the study of electronics, knowledge of fundamental electrical relationships provides the foundation for developing advanced concepts and skills. This course covers the basic electrical quantities of current, voltage, and capacitance that are universal to all circuits. An understanding of how electronic circuits work, as well as how they can be manipulated and repaired, depends on familiarity with these basic quantities and the relationships between them. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Basic Lab Operations | This course provides laboratory participants with basic information about the responsibilities and duties of a lab technician. After completing this course, participants should be able to describe, in general terms, what lab technicians do and how they perform various functions. The course also covers safety hazards related to lab work and explains how lab technicians are protected from them. In addition, the course introduces the use of quality control in laboratories and shows how quality control affects lab operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Basic Machines and Motion | This course discusses what mechanical advantage is and the different basic machines that have a mechanical advantage. These machines include levers, pulleys, wheels, inclined planes, wedges, screws, and gears. This course also describes the different types of motion including linear, circular, harmonic, and wave | 0.25 | Intermediate |
| Basic Refinery Operations | Refineries produce many different types of products for a variety of uses. Although no single refinery produces all types of products, many refineries produce more than one type of product. This training unit examines the functions of refinery systems and equipment and describes the role of operators in refinery operations. | 1 | Intermediate |
| Basic Rigging, Part 1 | The purpose of this course is to provide participants with an overview of basic rigging. Safely accomplishing any rigging operation involves selecting the proper equipment, determining if the equipment is in acceptable condition, and properly carrying out all applicable procedures. This course focuses on basic rigging components. | 1 | Intermediate |
| Basic Rigging, Part 2 | Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on basic rigging procedures. | 1 | Intermediate |
| Basics of Leadership: 01-Leadership Challenges | Leaders in the 21st century must accommodate themselves to todays rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 02-Changes in Corporate Culture | A companies organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 03-Keeping Employees Energized | Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3. | 1 | Intermediate |
| Basics of Leadership: 04-Knowledge Management | Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in todays workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 05-Elements of Change in Business | Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why its essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership. | 1 | Intermediate |
| Basics of Leadership: 06-Leadership Dynamics | Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series. | 1 | Intermediate |
| Batteries | A battery is a primary component of a substation or switchyard direct current (DC) control system. The function of the control system is to supply control power to operate critical devices such as protective relays, alarms and status indicators, supervisory and communications equipment, and switchgear operating circuits. This course describes the role of the battery in the DC control system, the components of a lead-acid battery, how a battery works, battery ratings, and general battery inspection steps. | 1 | Intermediate |
| Battery Applications | This 3-hour interactive online course is an overview of the most common chemical cell batteries in use today. It includes information about both primary and secondary battery types. Battery characteristics such as the chemical composition, electrical parameters, and physical construction are reviewed. Appropriate application issues are discussed for each battery type as well as the appropriate charging methods for rechargeable battery types.<br><br>The course includes a test at the end of each scenario to measure your understanding of the material. | 3 | Intermediate |
| Battery Cell Construction, Maintenance, Specifications, and Types | A cell converts chemical energy into electrical energy. The basic cell consists of two electrodes of dissimilar metals that are electrically isolated from each other, an electrolyte, and separators. A chemical reaction inside the cell produces electrons. Electrons must flow from the negative electrode to the positive electrode for the chemical reaction to take place. Unless electrons are flowing, the chemical reaction does not take place. Once you connect a load, the reaction starts. This course discusses many different aspect of battery cells. | 0.5 | Intermediate |
| Battery Types and Charging Theory | This course discusses multiple types of batteries and the theory of battery charging. It will cover the chemical action of charging, charging limitations, voltage and current sources, charge rates, and battery temperature. | 0.25 | Intermediate |
| Be Proactive! Inclusion Starts With You | An inclusive work environment is created by individuals who value each other's differences - and, are proactive in stopping workplace discrimination or harassment. It's often difficult to know how to react when witnessing an individual or group of people experiencing any form of discrimination or harassment - but don't ignore it and walk away! This course will provide three ways you can be proactive about inclusion in your workplace. | 0.2 | Intermediate |
| Bearings Basics | Bearings are machine parts in which other parts turn or slide. Almost every piece of moving machinery in an industrial facility uses bearings. This course describes the different types of bearings, their functions, and corresponding maintenance procedures. | 1 | Intermediate |
| Bed Bugs: Facts And Prevention | Bed bugs have made a comeback in the US due to increased international travel. Bed bugs can crawl out of a travelers suitcases and establish themselves in hotel rooms. A Bed bug problem can be quite expensive. In fact, an outbreak could lead to serious litigation and large settlements and loss of business. Can your property afford it? This program trains your employees to spot bed bugs so they can be caught in the early stages and remediated before a major infestation occurs. This DVD contains both English and Spanish versions. | 0.15 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Belt Drive Adjustment | The primary function of all belt drives is the transmission of power from a source, such as an engine or electric motor, to a variety of devices. Improper tension and misalignment are the main problems that cause belts to fail. Both of these can be prevented with regular inspections, and basic knowledge of how to adjust tension and alignment. This course will describe safety measures for working with belts and drives, how to prevent common belt problems, how to inspect a belt, as well as how to remove and replace belts. | 0.25 | Intermediate |
| Belt Drive Basics | Belt drives are known as flexible machine elements. This type of element has the advantage of being able to absorb significant amounts of shock and vibration. The primary function of all belt drives is the transmission of power from a source, such as an engine or electric motor, to a variety of devices. This course will discuss advantages and disadvantages of belt drives, belt types, common belt problems, and proper belt handling. | 0.25 | Intermediate |
| Benzene: Safe Handling & Storage | This course will review the information required to safely handle benzene. Benzene is a flammable organic liquid that is classed as a potential human carcinogen. Training will discuss the production and use of benzene in manufacturing processes. The applicable regulatory requirements will be reviewed. The physical and chemical properties will be covered to help ensure safe handling practices. Potential exposure mechanisms, symptoms of exposure, and the use personal protective equipment are topics for consideration. The requirement for storage, handling, and transportation of benzene will be included in the training. | 1 | Intermediate |
| Better Business Writing | Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world. | 0.75 | Intermediate |
| Blending Operations | Petroleum refinery products are blends of components from various process units plus additives. When the necessary blend components have been combined and any additives have been added, the result is a finished product, such as gasoline, jet fuel, or diesel fuel. In this course, you will explore some common products and the components used to blend them, different methods for blending products, and typical operator responsibilities throughout blending operations. | 1 | Intermediate |
| Blind Spots: Diversity and Inclusion | Is your biology working against you?This course will help you understand how our minds create blind spots and subconscious bias, and teach you how to evaluate the subconscious drivers that lead to ethical breakdowns. | 0.5 | Fundamental |
| Bloodborne Pathogens for Custodians | Maintenance and custodial workers regularly encounter situations where they could be exposed to a bloodborne pathogen. This video, produced especially for custodian and maintenance staff, demonstrates how custodians and maintenance workers can safely clean up spills of blood or other potentially infectious materials without risking exposure. Topics covered also include: What bloodborne pathogens are, Diseases that could be transmitted, Potential exposure routes, How to protect yourself from exposure | 0.25 | Fundamental |
| Blueprint Basics | Blueprints are one of the most important communication tools that a company can possess. Blueprints must communicate ideas about many different subject areas to many different people within an organization. This course will discuss the front page, legend, and other aspects of blueprints. | 0.25 | Intermediate |
| Bobtailing and Jackknifing | Bobtailing is sometimes necessary but a dangerous method of driving a big rig tractor without any trailing component. This program is designed to train your drivers on the challenges of bobtailing and the dangers of jackknifing. Drivers will learn how the profile, weight dynamics and engine power of the tractor can cause problems without a trailer attached. | 0.25 | Fundamental |
| Boiler Efficiency 1: Air Heaters and Preheaters | This course explains how air heaters and preheaters affect boiler efficiency and heat rate. After completing this course participants should be able to identify boiler parameters commonly associated with air heaters and preheaters and explain how boiler efficiency and heat rate are affected by changes in those parameters. They should also be able to explain how problems with air heaters and preheaters can be recognized and corrected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Efficiency 2: Oil and Gas Fired Furnaces | This course is designed to explain how the windbox, the burners, and the furnace affect the efficiency and heat rate of oil and gas fired boilers. After completing this course, participants should be able to explain how the windbox, the burners, and the furnace operate together to sustain combustion, and how problems with these components can be recognized and corrected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Efficiency 2: Windboxes, Burners, and the Furnace | This course is designed to explain how the windbox, the burners, and the furnace affect boiler efficiency and heat rate. After completing this course, participants should be able to explain how the windbox, the burners, and the furnace operate together to sustain combustion, and how problems with these components can be recognized and corrected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Efficiency 3: Superheaters, Reheaters, and the Economizer | This course describes how superheaters, reheaters, and the economizer affect boiler efficiency and heat rate. After completing this course, participants should be able to describe how superheaters and reheaters add heat to steam, and how the economizer adds heat to feedwater. They should also be able to explain how attemperators control steam temperatures and protect superheaters and reheaters; and how problems with superheaters, reheaters, and economizers affect heat rate. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boiler Feedwater - Chemical Additives | The primary function of a boiler is to transfer heat from hot gases generated by the combustion of fuel into water until it becomes hot or turns to steam. The steam or hot water is then used in a variety of facility processes. Boiler feedwater often contains impurities, which impair boiler operation and efficiency. To improve feedwater quality and steam purity, as well as correct other problems caused by impurities, chemicals can be injected directly into the feedwater or steam. Chemical additives increase boiler efficiency, reduce fuel, operating and maintenance costs, minimize maintenance and downtime, and protect equipment from corrosion and extend equipment life. | 0.5 | Intermediate |
| Boiler Feedwater - Deaeration | A boiler recovers heat from burned fuels. This is accomplished when high pressure boiler feedwater inside tubes located throughout the boiler is heated and turns into steam or hot water. The steam or hot water is then used in a variety of facility processes. Boiler feedwater often contains dissolved oxygen, which is a common cause of corrosion inside boilers. The dissolved oxygen reacts with the boiler's waterside metal surfaces to damage boiler tubes, headers, and drums. Corrosion can become more aggressive depending on the concentration of gas, pH, and temperature of the boiler feedwater. Therefore, the purpose of deaeration is to remove dissolved oxygen, carbon dioxide, and other non-condensable gases from boiler feedwater. | 0.25 | Intermediate |
| Boiler Feedwater - Demineralizer | A boiler recovers heat from burned fuels. This is accomplished when high pressure boiler feedwater inside tubes located throughout the boiler is heated and turns into steam or hot water. The steam or hot water is then used in a variety of facility processes. Boiler feedwater often contains inorganic salts, dissolved impurities, and foreign particles, which generate corrosion problems and decrease efficiency due to damage to heat transfer surfaces. Demineralizers use ion exchange resins to remove these impurities in the raw water used for makeup in boiler feedwater. | 0.25 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Boiler Fundamentals | Boilers are commonly used to provide a source of steam for industrial plants. The plant personnel who operate and maintain boilers need to have a good working knowledge of the fundamental principles of boiler operation. They also have to know how to monitor and control the operation of boilers in their plant and the systems associated with the boilers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Boilers: Combustion, Water, and Steam | This course is designed to familiarize participants with some of the equipment and flow paths associated with combustion and steam production in a boiler. After completing this course, participants should be able to describe the parts and operation of typical gas burners, oil burners, and stokers. They should also be able to explain how air flow is produced in a boiler, why the proper fuel-to-air ratio must be maintained, and how air heaters improve the efficiency of boiler operation. Finally, participants should be able to explain how water circulation occurs in a boiler and describe the use of economizers and moisture separators. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions | Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than $150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs | 1 | Intermediate |
| Boolean Algebra, Part 1 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Boolean Algebra, Part 2 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Boolean Algebra, Part 3 | Boolean algebra, also known as Boolean logic, is a way of calculating truth values based on 0 and 1, or false and true. This system of logic, illustrated by Boolean logic gates, is applied to the construction, inputs, and outputs of applications such as circuitry and computer function. This course outlines the basics of Boolean functions and laws, instructions on writing out truth tables in order to illustrate each of the logic gates and all their possible outputs, instructions on converting these tables into Boolean expressions, how to use Boolean algebra to simplify combinational logic circuits, and how to convert Boolean expressions into Karnaugh maps. | 1 | Intermediate |
| Box Cutter Safety | Box cutters are used in every type of retail environment. Millions of cuts are made with box cutters each day and it only takes a moment of inattention to cause an injury. Regardless of the type of box cutters used, they all can cause serious injuries if not handled properly. This video program is designed to train your employees on the dangers of box cutters as well as demonstrate the steps they can take to remain safe.Topics covered also include:Safe body positioningProper storage of the box cutterBlade disposalSafe blade changing techniques | 0.1 | Fundamental |
| Brain Bites - Email Management | From a Frustrating Chore to a Powerful Tool  Learn How To Make Email Work For You. More than ever before people rely on email in the workplace  but we dread the amount of time it takes to read through and respond to all our messages. This course will give you the skills you need to tame your email mountain and use it as the effective tool its meant to be.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce. | 0.5 | Fundamental |
| Brain Bites - Empathy: The Key to Active Listening | Show that you are actively listening by using empathy. You have probably heard empathy described as feeling someone's pain, but what if that is not helpful or possible? Empathy is an important skill to improve your active listening and make those around you feel heard. By the end of this course, you will be able to explain and practice empathy by noticing body language, voice, and tone. You will learn to communicate an awareness of what someone else is feeling and be a better active listener using empathy.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce. | 0.25 | Fundamental |
| Brain Bites - Let Them Know You're Listening | Send the message that you are listening to understand. The truth is, it's easy to not listen. We are surrounded by distractions and the list of reasons we don't listen well is long. So we have to work on listening to make others feel heard—especially at work. By the end of this course, you will be able to describe how to become a better, more active listener through focusing your attention on the speaker and clarifying their message. You will learn to build trust and become more approachable.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce. | 0.25 | Fundamental |
| Brain Bites - Organizing Your Files | How To Stop Wasting Up To Two Hours Per Day Looking For Information<br>On average office workers spend one to two hours per day looking for information. Having an organized, searchable file and folder structure makes everyone more efficient and this course will show you how to do it.<br>Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce. | 0.5 | Fundamental |
| Brain Bites - Sharing a Workspace | Learn to safely share a workspace to keep you and your coworkers healthy. The spread of COVID-19 led many offices to institute new rules and guidelines. This type of event underscores the importance of a clean environment in which employees are considerate about sharing space. By the end of this course, you will feel confident about sharing a workspace effectively to keep you and your coworkers healthy and safe. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce. | 0.25 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Brain Bites - Staying Safe Online | Meet the hackers trying to break into your company, and learn how to recognize the ways they try to use you and your colleagues to steal money, data, and more. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce. | 0.25 | Fundamental |
| Brain Bites - Time Management | Take back your day - learn how to reduce distractions and focus on priorities to get more done. Everyone is given the same twenty-four hours every day. How you use them is up to you, and in this mini-course we'll look at tips from some of the world's top experts in time management, including Stephen Covey, Dave Crenshaw, Peter Drucker, and Tim Ferriss. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce. | 0.25 | Fundamental |
| Brain Bites - Using Windows 10 | Learn how to really use the tools in Windows 10 to be more productive. Windows 10 introduced many new tools, and updated others, including Cortana, Task View, Virtual Desktops, the Quick Access Screen, and more. In this mini-course we'll show you how to get around in Windows 10, and how to customize and take advantage of the major features and tools Windows 10 provides. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce. | 0.75 | Fundamental |
| Brain Bites - Writing Effective Emails | Send emails that are read, understood, and acted on. Let's face it, email is a fact of life. The average employee in the US receives 125 emails per day. The majority of professionals say email creates tension, confusion, and other negative consequences in their busy work days. This course will help you to be part of the solution by identifying ways to write better and fewer emails, that will also ensure your emails are read, understood, and acted on. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce. | 0.5 | Fundamental |
| Brain Bites: Microsoft Teams Meetings | Maximize your meetings with Microsoft Teams. If someone told you you'd be comfortable collaborating and meeting virtually in less than 30 minutes, would you believe them? Believe it! Bigger Brains has a way for you to learn Teams for virtual meetings that are just as easy and collaborative as your in-person gatherings. Thanks to its features and ease of use, Microsoft Teams is quickly becoming the dominant meeting platform for businesses of all sizes. Don't be left behind! We'll take a look at the major features of Teams meetings, including its deep integration with Microsoft Outlook and collaboration tools like Microsoft Whiteboard and PowerPoint. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce. | 0.5 | Fundamental |
| Brayton Cycle Analysis | The ideal cycle for the simple gas turbine is the Brayton Cycle, also called the Joule Cycle. In this 1-hour interactive online course, the open, simple Brayton Cycle used for stationary power generation is considered. The Brayton Cycle thermal efficiency is also presented (but only for the air as the working fluid) and the thermal efficiency derivation is presented with a simple mathematical approach. The Brayton Cycle is presented in the T - s diagram and its major performance trends (specific power output and power output) are plotted in figures as a function of compressor pressure ratio, gas turbine inlet temperature and working fluid mass flow rate. In this course, the student becomes familiar with the Brayton Cycle, its components, T - s diagram, operation and major performance trends. This course provides the student with background material regarding basic thermodynamic concepts and a glossary for reference material. It should be noted that this online course does not deal with capital, operational or maintenance costs. | 1 | Intermediate |
| Browser Security Basics | A large number of cyber attacks target browser activity. This course provides all staff members with an overview of browser security and ways to browse the web safely. Topics include: the types of browser threats, the basics of browser security and safe browsing practices. | 0.25 | Fundamental |
| Bucket Trucks, Part 1 | The purpose of this course is to teach the major parts of a bucket truck, safety features commonly found on bucket trucks, and some of the pre-use inspections that can be made on a bucket truck. It is assumed that participants has no previous experience in operating bucket trucks. After completing the course, participants should practice operating the controls of a bucket truck under the supervision of experienced personnel. At the conclusion of this course, participants should be familiar with the major parts of bucket trucks. They should also be familiar with the basic types of bucket trucks, the boom controls, some of the common safety features and overrides, and some of the common pre-use inspections that can be performed on a bucket truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Bucket Trucks, Part 2 | The purpose of this course is to teach some basic techniques that can be used to operate a bucket truck safely and efficiently. Techniques for setting up and operating a bucket truck at three typical job sites are described. It is assumed that participants is already familiar with the basic parts of a bucket truck and understands how to use the bucket controls to operate the booms. After completing the course, participants should practice setting up and operating a bucket truck at a job site under the supervision of experienced personnel. At the conclusion of this course, participants should be able to set up and operate a bucket truck at a job site. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Building Air Systems | A building air system provides a controlled environment for personnel working in the building and provides the needed air adjustments. This is done by using exhaust and air makeup to control contaminates and preserve the building structure. This course describes the purpose of building air systems, makeup and exhaust air systems, conditioning methods, and air balance. | 0.25 | Intermediate |
| Building Design and Construction Features for Fire Protection | Hostile fires are responsible for 3,000 deaths and 16,000 injuries each year. Approximately 100 firefighters die in the line of duty during that same period. In addition to human injury and death, is the property loss which is estimated to be almost $12 billion a year. This interactive online course will teach you the basic, but critical, aspects of how a building design influences the likelihood of a hostile fire and how that same design can mitigate the effects of an emergency fire incident. You will learn about basic building layout, construction components, building materials, fire ratings, occupancy considerations, emergency population management, and passive and active mitigating systems. | 1 | Fundamental |
| Building for Senior Living: Mechanical, Plumbing, Fire-Protection, Electrical, Communications, and Low-Voltage | When designing buildings and spaces for an aging population, special requirements for building systems must be taken into consideration. Building systems account for significant parts of both the construction and operating costs of senior housing and care facilities. This course will cover multiple building systems, including mechanical, plumbing, fire-protection, power distribution, communications systems, and low-voltage electrical systems, and discuss special requirements for these systems in senior housing and care facilities. The use of spaces within the building and the needs of its occupants should be carefully analyzed, and design should be focused on the typical comfort, convenience, and safety needs of older adults. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Building Information Modeling (BIM) for Contractors | Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved. | 2 | Fundamental |
| Building Information Modeling (BIM) for Owners and Facility Managers | Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved. | 2 | Fundamental |
| Building Leadership Capability | As a leader you will have opportunity to coach and mentor others in both official and unofficial capacities. Knowing how to effectively coach and mentor your people is key to both their success and to preparing new leadership to step up. Through application exercises and a rich multimedia process, you will learn the skills to be an effective coach or mentor, and thus be able to build additional leadership capability in your organization. | 0.5 | Intermediate |
| Building Performance: Design Through Operations | How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design. | 1 | Intermediate |
| Bulldozers | The coal that is delivered to a plant is often unloaded and sent directly to bunkers that supply the boiler furnaces. However, when the bunkers are full, the coal delivered to the plant is typically deposited on storage piles. Bulldozers are used to spread coal out on these storage piles and to reclaim coal from the piles when it is needed in the plant. Bulldozers are also used to manage coal piles to reduce the risk of fires and to minimize loss from erosion due to wind and rain. Coal handlers who use bulldozers must know how to operate them safely and correctly, and how to take care of them properly. This training program focuses on the use of bulldozers in coal handling operations. Emphasis is placed on practical applications, inspection procedures, minor maintenance procedures, and basic operating procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Buses and Storage | This course covers the definition of a bus and then discusses computer storage such as USBs, FireWire, CDs, and DVDs. | 0.5 | Intermediate |
| Business Communication Fundamentals | In the business world, effective communication is an essential part of getting things done specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them what to include and what not to include for that's what dictates how well we communicate. | 0.75 | Intermediate |
| Business Dining Etiquette | Proper etiquette makes a statement about your character and competence as a professional. In this course we'll focus on business dining etiquette and how to present your best self when meeting with clients, colleagues, partners, or even friends. Upon completing this course you will understand proper business dining etiquette for before, during, and after the meal. In addition you will understand common place settings and proper utensils. Finally, you'll learn about proper etiquette when you are hosting a meal. | 0.5 | Intermediate |
| Business Disputes: Alternative Resolutions to Litigation | Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation. | 1 | Advanced |
| Business Ethics | Ethics is defined as the discipline dealing with what is good and bad and with moral duty and obligation. Practicing proper business ethics can be more simply stated as doing the right thing at work. Once you become an employee of the company, you become a part of many relationships that require that you behave in a manner that benefits you, those around you, and the company. This module will cover the ethics of your behavior involving relationships within the company and your behavior involving entities outside the company. | 0.5 | Intermediate |
| Business Ethics: Quick Refresh | Designed as a review to supplement a comprehensive business ethics course, you'll start out reviewing the definition of ethics and an understanding of how trust functions in our social interactions. We have an expectation of how others will behave towards us and how we will behave towards them. While engaging with each other, individuals behave unethically in ways that breach shared trust. You'll also look at some of the thinking errors associated with unethical behavior. From there, you will find brief descriptions on the different rules defining business ethics. For the sake of brevity, some information has been omitted, summarized, or simplified. | 0.5 | Intermediate |
| Business Execution: 01-Execution Strategies | Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go. | 1.5 | Intermediate |
| Business Execution: 02-Inspiring Workplace Excellence | When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees. | 1 | Intermediate |
| Business Execution: 03-Turning Ideas into Actions | There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure. | 1.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Cable Fault Locating, Part 1 (Radar) | Cable Fault Locating (Radar), Part 1 is designed to familiarize participants with how a radar cable fault locator works, how to interpret the information provided by a radar cable fault locator, and how a radar cable fault locator can be used to test a section of underground residential distribution (URD) cable. To gain maximum advantage from this course, participants should have a basic understanding of URD systems and troubleshooting procedures used for URD cable faults. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to explain how a radar cable fault locator works and what the information provided by the fault locator means. They should also be able to describe how to use a radar cable fault locator to test a section of URD cable. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Fault Locating, Part 2 (Radar) | Cable Fault Locating (Radar), Part 2 is designed to familiarize participants with equipment and basic procedures for prelocating and pinpointing faults in underground cables using radar cable fault locators. At the conclusion of this course, participants should be able to explain the basic concepts of prelocating a cable fault, and should be able to describe how to prelocate a cable fault using the arc reflection method. They should also be able to describe how to pinpoint the location of a cable fault after it has been prelocated. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Splicing, Part 1 | The purpose of this course is to teach the principles of underground cable splicing and to demonstrate how cable splices are made. The course explains how to approach splicing in both primary and secondary cable. Demonstrations of splicing both types of cable are presented. At the conclusion of this course, participants should be able to explain how cable splices are made. They should know how to make a splice in either primary or secondary cable. They should also understand how heat shrink and cold shrink splices are used. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Splicing, Part 2 | The purpose of this course is to teach the principles of splicing paper-insulated lead-covered (PILC) cables. The course explains how to prepare PILC cable for several typical splices made on primary PILC cables. Demonstrations of making several typical splices on PILC cables are presented. At the conclusion of this course, participants should be able to explain how several typical splices on PILC cables are made. They should know how to make a straight splice, a typical transitional splice, and one type of trifurcating transitional splice on a PILC cable. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cable Terminations | The purpose of this course is to teach the principles of high-voltage cable terminations and to demonstrate how such cable terminations are made. The course explains the problems associated with voltage stress and the function of stress cones. Demonstrations of how to make several different kinds of cable terminations are presented. At the conclusion of this course, participants should be able to explain what voltage stress is and how terminations are built to avoid voltage stress problems. They should understand how to make a high-voltage termination in a substation. They should also know how to make terminations at pedestals and how to install a pothead. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Capacitors, Part 1 | Capacitors are used to control and increase the amount of capacitance in electrical circuits. In this course, participants will learn about the principles, function, and construction of capacitors as well as how to calculate capacitance and RC time constants of circuits. | 1 | Intermediate |
| Capacitors, Part 2 | Conditions exist in any transmission and distribution system that result in power losses in the systems and equipment that deliver power and in the systems and equipment that use power. In order to compensate for these power losses, utilities often use devices such as capacitor banks and shunt reactors. This course covers the functions of substation capacitors and reactors as well as how they can be safely cleared, maintained, and tested. | 1 | Intermediate |
| Car Dumpers | Coal handlers operate and maintain the equipment used to transport and unload coal cars. This equipment may include rotary car dumpers, positioners, and retarders. To help coal handlers develop the skills needed to work safely with this equipment, this course describes how rotary car dumpers, positioners, and retarders work. It also explains how this equipment is generally operated during receiving operations, and how it is maintained. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Carbon Tracking/ Reduction Strategies for Facility Design and Operations | Carbon emissions are increasingly taking center stage at the forefront of sustainability. While concepts like net zero energy are gaining mainstream traction and help account for the design/reuse of facility's' energy utilization, they do not holistically account for their long-term operational carbon footprints. Often, these footprints represent the largest consequential greenhouse gas emissions associated with the building(s) over their useful life. This interactive online course will introduce the concept of designing for operational carbon tracking and reduction utilizing a case study project - a multi-building urban college campus in metro-Boston. This project was initiated by students and faculty of the school in 2013. This course will introduce team organization, methodology, an overview of the three Scopes, and strategies for ongoing reductions towards the goal of carbon neutrality. This course will be useful for anyone interested in single or multi-building projects where carbon tracking, reduction, and off-setting are a priority. | 2 | Intermediate |
| Care and Testing of Tools and Equipment | The purpose of this course is to teach care, inspection, and testing of tools and equipment commonly used in transmission and distribution maintenance work. Basic information is also provided on two particular types of tests: dielectric tests and acoustic emission tests. At the conclusion of this course, participants should be able to define the objectives of dielectric and acoustic emission tests and to explain, in general terms, how these tests are performed. Participants should be able to describe and demonstrate how to inspect protective equipment such as rubber gloves, sleeves, blankets, line hose, hoods, mechanical jumpers, bucket trucks, and hot sticks. They should also understand how to care for this equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cell Phone Use in the Workplace | Cell phones have become a standard part of everyday life. They allow us to call or text, find directions, take and share pictures, schedule our lives, deposit money, listen to music, and keep up with social media. While cell phones have many positive aspects, there is a time and place for their use. Using a cell phone improperly at your job site can pose dangers to you and your coworkers. This course will cover these dangers as well as best practices associated with cell phone use. | 0.5 | Intermediate |
| Centerlining Methodology | Centerlining is a methodology used to reduce product and process variability and increase machine efficiency in manufacturing and other industrial processes. The two objectives of Centerlining are to determine the best settings for a production process and to ensure the best settings are always used during production. This course illustrates the key concepts of Centerlining and will guide your production team to produce products that are consistently made, which leads to satisfied customers and lower costs. | 0.25 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Centrifugal Compressors | This course is designed as a reference tool that participants can use to refresh their understanding of centrifugal compressor components and operation. This course also covers the disassembly and reassembly of a vertically split compressor and the various checks and measurements that are made to compressor components. | 1 | Intermediate |
| Centrifugal Pump Components | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Centrifugal pumps convert external rotational mechanical energy into kinetic energy within a liquid. In a centrifugal pump, this is done by accelerating the liquid from the center to the outer rim of a spinning impeller within a pump casing. This course covers the terminology and function of the mechanical components that make up a typical centrifugal pump. | 0.5 | Intermediate |
| Centrifugal Pump Curves and Theory | A centrifugal pump is a dynamic machine that has performance characteristics which are partially determined by the environment in which it is operating. One of the best ways to display and study the capabilities of a given pump is with a graph called a pump performance curve. A pump performance curve is actually a set of curves showing a number of parameters versus flowrate. Pump curves can be combined with hydraulic requirements, or system curve, to determine the suitability of a pump for a given task. | 0.5 | Intermediate |
| Centrifugal Pump Fluid Mechanics | Pumps convert rotational kinetic energy, such as that supplied by an electric motor, into hydrodynamic energy, or an increased pressure in a fluid required to make it flow. In order to make a fluid flow, energy, or pressure must be supplied to overcome two fundamental obstacles to flow. One obstacle is created when the elevation of a fluid is increased. The second is presented by the need to overcome the internal resistance of a fluid to flow. This course focuses on how these basic hydraulic concepts apply to piping system evaluation and pumping requirements. | 0.5 | Intermediate |
| Centrifugal Pump Operations and Maintenance | Pump operations and pump maintenance are two closely interrelated topics. Poor mechanical pump maintenance will lead to a loss of hydraulic performance and what may appear to be operational problems. Operational decisions which cause the pump to operate outside of its preferred operation region can lead to physical pump damage which could be misinterpreted as a traditional maintenance issue. It is important to determine the root cause of a problem. This course will cover methods for monitoring pump hydraulic operation and methods for observing and maintaining the mechanical condition of a pump. | 0.5 | Intermediate |
| Centrifugal Pump Selection and Sizing | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Pumps have been developed to specifically address a wide range of applications. Selecting the correct pump for a given job can be a daunting proposition. Some pump classifications are based on their hydrodynamic characteristics, some are based on mechanical construction and some are based on compliance with industry standards. In this course, we will help you understand these different classifications and present some of the strengths and weaknesses of the different designs. | 0.5 | Intermediate |
| Centrifugal Pump System Components and Design | The purpose of a pump is to increase the pressure of a liquid and transfer it from one location to another. Although a pump is essential to this goal, it is only one element of a larger system that is required to accomplish liquid transfer. This course will cover some of the mechanical components such as drivers and couplings that support pump operation. It will also cover how the design of a piping system around a pump will affect pump selection and performance. | 0.5 | Intermediate |
| Centrifugal Pumps | Pumps are used to move liquids from one place to another by increasing the mechanical energy of the liquid. The energy can be used to raise the liquid to a higher elevation or to increase its velocity or pressure. In a centrifugal pump this is accomplished by rotating an impeller which creates centrifugal force that transfers energy to the liquid. This module focuses on pumping principles and operation guidelines for typical centrifugal pumps. | 0.5 | Intermediate |
| Centrifuge Operations | In this course, you will learn that centrifugation is a mechanical means of separating materials of different densities by spinning them. You will also learn about the types of centrifuges, their auxiliary equipment, and their basic operating procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| cGMP Essentials: Change Control | In this online interactive course, we'll be looking at change control. We're going to discuss why we need change control and what that process looks like. You'll see what areas are typically governed by change control. We're also going to look at the considerations you should have regarding how the change will impact the system, how you're going to implement the change, and follow the proper notification procedure. | 0.17 | Fundamental |
| cGMP Essentials: Data Integrity | As more and more data is being generated in the pharmaceutical world, the integrity of that data must be protected. In this data integrity course, employees will understand what data is, what the regulatory expectations are for data, the controls used, good documentation practices and what kinds of data integrity issues exist. | 0.17 | Fundamental |
| cGMP Essentials: Deviation and CAPA | Errors and issues happen. When they do, our employees need to know how to investigate these occurrences and how to prevent their recurrence. Deviation and CAPA walks employees through steps to take when performing a root cause analysis and the CAPA process. | 0.17 | Fundamental |
| cGMP Essentials: Good Personal Hygiene | One of the easiest cGMP compliance practices is good personal hygiene. In this course, employees will learn why good personal hygiene is important and measures they can take to protect themselves, fellow employees and our customers. | 0.17 | Fundamental |
| cGMP Essentials: Intro to cGMP | As a new pharmaceutical employee, it is important to understand the rules and regulations that govern the pharmaceutical business. Introduction to cGMP will educate all employees on the history of the US FDA, why we have good manufacturing practices and why they are important not only to our business, but for the health and safety of our consumers. In this online interactive course, we will discuss current good manufacturing practices, how they came about, and why they are important to the day-to-day quality standards set within our organizations. | 0.17 | Fundamental |
| Chain Drive Basics | A chain drive is a system that includes two or more sprockets and a chain. One sprocket is driven, and its teeth mesh with the gaps in the links of the chain. When the sprocket is turned, it catches the chain, and transfers the force of the input to the rest of the system. The purpose of a chain drive is to transmit power from one place to another. This course covers the common components of chain drives as well as several procedures that can be performed to optimize chain drive performance. | 0.5 | Intermediate |
| Chain saw Accidents - The Consequences | Chain saw accidents can be devastating and drastically affect your quality of life. In this program, we explain how chain saw accidents can occur, and what the consequences can be. Filmed with visual scenes of injuries to employees who were involved in chain saw accidents, this video hammers home the seriousness of what can happen when using a chain saw, and the importance of following proper safety procedures at all times during chain saw use. By demonstrating the many ways a chain saw accident can occur your employees will walk away trained in how to prevent them. | 0.15 | Fundamental |
| Chain saw Safety | Using a chain saw is something landscape personnel in public works and many other occupations must frequently do. Because of the dangers inherent in chain saw use, it is critical that you operators be properly trained on how to use them. This comprehensive video demonstrates chain saw use by skilled operators. In it, the most important techniques to prevent injuries when using a chain saw are covered. Every chain saw operator can learn something from this easy to understand program. | 0.25 | Fundamental |
| Change Management | Change is a constant in todays world. Business organizations are continually looking to improve performance by upgrading equipment, changing the organizational structure or job roles, or implementing new processes or procedures. The success of any change depends greatly on employees embracing the change. This course discusses several skills and tools necessary for supervisors to lead successful changes. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Chemistry: Basic Principles, Part 1 | Operators who work in process plants need to have a good understanding of the basic principles of chemistry, since processes often involve changes in the structure and composition of matter. This course will provide an introduction to chemistry, definitions of key terms, a review of compounds and mixtures, and an examination of solutions and how they are different from other mixtures. | 1 | Intermediate |
| Chemistry: Basic Principles, Part 2 | This course is designed to familiarize you with basic concepts associated with chemical reactions, material balancing, and organic chemistry. After completing this course, you should be able to use a chemical equation to explain what occurs during a chemical reaction, and explain how combustion reactions, replacement reactions, and neutralization reactions occur. You should also be able to explain what material balancing is and describe the basic steps involved in balancing the materials represented in a simple equation. In addition, you should be able to explain what organic chemistry is and how some organic chemicals are named. | 1 | Intermediate |
| Chemistry: Material Balancing | This course is designed to familiarize participants with basic concepts associated with using balanced chemical equations to calculate the amounts of reactants and products in process reactions. After completing this course, participants should be able to explain what material balancing is, verify that a chemical equation is balanced, and use a balanced equation to calculate the amounts of reactants and products in a reaction when the weight of one reactant is given. They should also be able to identify two basic factors that can limit the production of a process system, perform material balancing for a process system when reactant supply is the limiting factor, and perform material balancing for a system in which a specific amount of product is to be produced. | 2 | Intermediate |
| Chemistry: Reaction Rates | This course is designed to familiarize participants with basic concepts associated with the rates at which chemical reactions occur. After completing this course, participants should be able to describe two factors that determine the rates of reactions and describe the effects of temperature, pressure, concentration, and surface area on reaction rates. They should also be able to describe how catalysts affect reaction rates and how equilibrium reactions can be affected by temperature and pressure. | 2 | Intermediate |
| Circuit and Switch Basics | Electrical components are in many things we use on a daily basis, from lights, to computers, to electronic toothbrushes. Each of these devices includes one or more circuits. The basic components of a circuit are an energy source, a conducting material, and a load. In order for a circuit to be useful, it needs a method of control. This module will discuss circuits and how they can be controlled. | 0.25 | Intermediate |
| Circuits and Power | This course covers the four parts of an electrical circuit, as well as the differences between common circuit types including series, parallel, and combination circuits. This course illustrates electrical power and how to calculate it. Finally, it discusses power rating and power conversion and efficiency. | 0.25 | Intermediate |
| Clamps, Blades, Saws, and Bits | A number of projects, large and small, professional and amateur, require the use of basic tools, including clamps, saws, saw blades, and drills. Since these tools often come in a variety of styles, sizes, and purposes, knowing how to make the best choices is practical knowledge to have. This course will identify and describe the common types of clamps, saws, saw blades, and drills as well as safety guidelines for using them. | 0.5 | Intermediate |
| Clean And Safe: Restrooms | Clean restrooms are significant. But, this video isn't just about HOW to clean a restroom, its about how to do it SAFELY. What PPE is needed? How can slips and falls be prevented in damp environments? How can you work with chemicals safely? What should be done with broken glass and/or other pointed objects? All of these questions and more are answered in this video designed for both Housekeeping and Facilities personnel. | 0.1 | Fundamental |
| Clear Communication | Clear Communication is a course designed to familiarize participants with ways to improve their basic communication skills. After completing this course, participants should be able to describe effective methods for improving listening skills, describe ways to ensure that listeners receive a message as the speaker intended, and describe techniques for effectively giving and receiving feedback. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Climbing Steel Poles and Towers | The purpose of this course is to teach the basic principles of safe climbing on steel poles and towers. Participants are also introduced to some of the common techniques for getting into position to do a job on a steel pole or tower. At the conclusion of this course, participants should be able to list and describe common climbing-related hazards encountered by linemen. They should be able to identify basic climbing equipment and demonstrate how it is used when climbing steel poles and towers. They should also be able to demonstrate and explain basic techniques for positioning in order to perform specific tasks. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Climbing Wooden Poles | The purpose of this course is to teach the use of basic climbing equipment, the basic techniques of free and belted climbing, and the care and maintenance of climbing equipment. Participants are also introduced to some basic climbing situations typically encountered by new climbers on a job. At the conclusion of this course, participants should have a basic understanding of the equipment used for climbing wooden poles, how to determine the proper fit of equipment, how equipment is cared for and maintained, and how equipment is tested and inspected. Participants should also understand the basic techniques of free and belted climbing and how to maneuver around a pole. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Clutch Basics | A clutch is a device that connects and disconnects a driving (input) shaft and a driven (output) shaft. Clutches are important for applications where the motor needs to be started before it is connected to the load or disconnected before it is stopped. There are many different types of clutches, each with advantages and disadvantages. The proper choice depends on the speed, torque, loading characteristics, and operating temperature of the application. | 0.25 | Intermediate |
| Coaching Job Skills: 01-Determining Training Or Coaching | Coaching Job Skills teaches managers, supervisors and team leaders how to successfully coach employees in their jobs. In addition, it will help widen the breadth of skill sets for all employees. | 1 | Intermediate |
| Coaching Job Skills: 02-Your Path to Training New Skills | Learn and apply the five-step process for training your team members on new skills. | 1 | Intermediate |
| Coaching Job Skills: 03-Your Path to Coaching Existing Skills | Learn and apply the five-step process for coaching your team members on existing skills. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Coaching Job Skills: 04-Mastering Training New Skills | Practice Training New Skills in a full scenario situation. | 1 | Intermediate |
| Coaching Job Skills: 05-Mastering Coaching Existing Skills | Practice Coaching Existing Skills in a full scenario situation. | 1 | Intermediate |
| Coaching Job Skills: 06-Health Check | Test your ability to apply Coaching Job Skills concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Coaching with Confidence | LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be for themselves, and for their teams. | 6.5 | Intermediate |
| Coal Handling Overview, Part 1 | Coal handlers work with a variety of equipment designed to help them perform the job of keeping a plant supplied with coal. This equipment, known collectively as the coal handling system, provides an efficient way of carrying out basic coal handling operations, which includes receiving, transporting, storing, and preparing coal. Coal handling systems can also be designed to perform other functions such as weighing coal, taking coal samples, controlling coal dust, and removing ash. This course explains how coal handling systems receive, transport, and store coal outdoors. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Handling Overview, Part 2 | Coal handlers work with a variety of equipment designed to help them perform the job of keeping a plant supplied with coal. This equipment, known collectively as the coal handling system, provides an efficient way of carrying out basic coal handling operations. These operations include receiving, transporting, storing, and preparing coal. Coal handling systems can also be designed to perform other functions such as weighing coal, taking coal samples, and controlling coal dust. In addition, coal handlers may be involved in removing the ash produced when coal is burned. It is important for coal handlers to be familiar with the various types of coal handling equipment and with the jobs that they need to perform to keep a coal handling system operating safely and efficiently. This training program explains how coal handling systems generally operate. It also describes equipment that carries out some of the major operations and support functions involved in coal handling. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Handling Overview, Part 3 | Coal handlers work with a variety of equipment designed to help them perform the job of keeping a plant supplied with coal. This equipment, known collectively as the coal handling system, provides an efficient way of carrying out basic coal handling operations, which includes receiving, transporting, storing, and preparing coal. Coal handling systems can also be designed to perform other functions such as weighing coal, taking coal samples, controlling coal dust, and removing ash. This course describes how coal handling systems collect and remove ash and describes the jobs coal handlers need to perform to keep a coal handling system operating efficiently. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Pile Management | Plants that need to burn large quantities of coal also need to maintain large coal reserves. The most common way of storing coal is in large outdoor storage piles. Coal pile management involves moving coal to and from storage piles, and maintaining the piles to deal with coal pile fires and environmental factors such as rain and wind. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Preparation Equipment | Coal preparation is an important aspect of coal handling. When coal leaves a plant's coal handling system, it generally is sent to one of two places. Depending on the design of the plant, the coal may go directly to a boiler furnace to be burned, or it may go through coal processing equipment, such as a pulverizer, before it is burned. In either case, coal usually has to be prepared during coal handling so that the pulverizing and burning will be more efficient. Coal preparation involves the use of special equipment that operators are often required to inspect, maintain, and troubleshoot. Operating coal preparation equipment properly can help prolong the life of the equipment and maximize the efficiency of the coal handling system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coal Yard Maintenance | Coal is a heavy, abrasive, and corrosive material that can be difficult for equipment to handle. To handle coal, equipment must often run at high speeds and carry heavy loads. To do its job, coal handling equipment must be continually maintained to ensure it stays in good running condition. This course examines the maintenance jobs that are commonly performed on coal handling equipment and describes how coal handlers may be involved with equipment maintenance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Coastal Engineering: Tsunamis | What is a tsunami? Tsunamis are destructive natural events that create extremely high storm surge and large waves causing large amounts of erosion, and extensive inundation jeopardizing structures and people along the nation's coastlines where these events can occur. This interactive online course will provide information about the magnitude of tsunami loads, tsunami evacuation shelters, and important issues regarding the placement of structures on tsunami-prone coastlines. Case studies will be included to illustrate techniques that are known to improve building survival of tsunamis. | 2 | Intermediate |
| Cogeneration Systems Essentials | Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits. | 1 | Fundamental |
| Collaborative Communication: 01-Communicating to Your Manager | Learn the background key concepts to effective communication to your boss or supervisor. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Collaborative Communication: 02-Your Manager's Communication Style | Identify the medium, frequency, and amount of detail needed to successfully communicate with your manager. | 1 | Intermediate |
| Collaborative Communication: 03-Your Path to Communicating Up | Learn and apply the five-step process for communicating to your boss or supervisor. | 1 | Intermediate |
| Collaborative Communication: 04-Mastering Communicating Up | Practice Communicating Up in a full scenario situation. | 1 | Intermediate |
| Collaborative Communication: 05-Communicating Up Health Check | Test your ability to apply Communicating Up concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Combined Cycle: Abnormal Operations | In this course, we'll look at conditions that are associated with abnormal operations in a combined cycle power plant. We'll examine some problems that can occur during a cold startup and a routine shutdown. We'll also look at abnormal conditions associated with the heat recovery steam generator (HRSG) and the steam turbine/generator during routine operation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combined Cycle: Distributed Control Systems | In this course, we'll focus on distributed control systems (DCS) as they relate to combined cycle power plants. We'll look at the overall purpose of a DCS and examine the components that make up the system. We'll also look at how a DCS can be used to monitor normal plant operation, and change device states and set points. And we'll see how a DCS can be used to troubleshoot malfunctions and abnormalities. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combined Cycle: Heat Recovery Steam Generators | In this course, we'll focus on heat recovery steam generators as they apply to combined cycle power plants. We'll cover some fundamentals related to the basic types of heat recovery steam generators (HRSGs) and to some general design considerations and we'll look at the components found in the various sections of an HRSG. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combined Cycle: Normal Operations | In this course, we'll focus on the normal operation of a combined cycle power plant. We'll look at an overview of the major components of a combined cycle plant, and we'll see how procedures for plant control are developed and updated. We'll also look at the procedures involved in starting up and shutting down a plant, and we'll see how a distributed control system (DCS) helps operators monitor and maintain a plant during normal operation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Analysis | Today, global warming is becoming more evident and it is being said that it is primarily caused by CO2 emissions. A detailed combustion analysis can be very useful in determining different fuel and technology scenarios that would result in the reduction of current CO2 emissions. Combustion has a high degree of importance in engineering. This 1-hour interactive online course covers complete and adiabatic combustion of carbon, hydrogen, sulfur, coal, oil and gas, with no heat loss, with standard air as the oxidant at stoichoimetric conditions. Six separate combustion cases are covered and basic combustion performance trends are presented | 1 | Intermediate |
| Combustion Turbine: Abnormal Operations | In this program, we'll cover some problems that can occur during operation of a simple cycle combustion turbine that drives an electric generator, and we'll see how operators can deal with these problems. We'll look at problems that can occur during startup and shutdown. We'll also look at some of the abnormal conditions that can occur within the different component sections of the turbine generator unit, and its support systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Combustion Turbine: Components | In this course, we will focus on the components that make up a typical combustion turbine, including those related to the intake and compression of the inlet air, the combustion of the fuel/air mixture, and the expansion of hot combustion gases through and out of the turbine. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Turbine: Normal Operations | In this course, we'll focus on operator responsibilities that are typically associated with the normal operation of a simple cycle combustion turbine that drives an electric generator. We'll see pre-startup checks that operators perform, and we'll look at steps involved in starting up the unit and then shutting it down. We'll also identify conditions that operators monitor during normal turbine operation, and we'll cover some routine inspection and maintenance tasks that operators may perform. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Turbine: Principles | In this course, we will focus primarily on combustion turbines that drive electric generators. From this perspective, we will go over the general principles of operation for a combustion turbine. We will look at the fundamentals of how combustion turbines work. We will examine factors that affect turbine efficiency, and we will see some of the many different applications in which combustion turbines are used. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Combustion Turbine: Support Systems, Part 1 | In this course, we will focus on several vital support systems that are associated with combustion turbines including the inlet air system, the lubricating oil system and the starting system, and different types of fuel systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Combustion Turbine: Support Systems, Part 2 | In this course, we'll cover three support systems that are critical for safe and efficient operation of a combustion turbine. These are the control system, the fire protection system, and the environmental system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Commercial HVAC Systems Essentials | When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/ maintenance, and management. | 1 | Fundamental |
| Commercial Kitchen Fire Prevention | Fires are an ever-present danger in a commercial kitchen. But the danger can be controlled and contained by following sound fire prevention principles. This video outlines these principles and trains your employees that properly following them will help in preventing and containing fires in your establishment. This program covers the different types of fire suppression systems as well as how to operate and inspect them. Additionally, the importance of keeping flues and appliances grease-free is reviewed as well as other common sense tips that will help your employees remain safe. It comes with both English and Spanish on one DVD. Topics covered also include: Different types of fire suppression systems. How to operate and inspect these systems. The importance of keeping flues and appliances grease-free. Common sense tips to help employees remain safe | 0.1 | Fundamental |
| Commercial Plumbing Systems Essentials | This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management. | 1 | Fundamental |
| Commercial Structural and Building Systems Essentials | This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building Systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects. | 1 | Fundamental |
| Communication Skills for Supervisors | Communication skills are frequently cited as the most important skills for supervisors. To be an effective supervisor, you must be able to communicate with all levels of the organization. Poor communication can have many negative consequences, such as poor performance due to lack of alignment on expectations, and conflicts between individuals. This module will cover some essential skills for communicating effectively, with a focus on communicating with your subordinates. | 0.5 | Intermediate |
| Company Layoffs and Downsizing | Layoffs, reduction, downsizing, rightsizing, staff cuts, managing redundancy; any way you say it, the reality is a complex process that impacts a lot of individuals and organizations worldwide. Through application exercises and a rich multimedia process, this course will increase your understanding of how to make this potentially traumatic experience as successful and positive as possible for everyone involved. | 0.75 | Intermediate |
| Compressed Air Fundamentals | Prepare yourself and your team to work safely with and around compressed air systems. Use this course to get a better understanding of the benefits and uses of compressed air. This course discusses the types of compressors (reciprocating, rotary screw, and centrifugal), the relationship between pressure, temperature and volume, gauge vs. absolute pressure, and air quality considerations. Additional topics include air cooling and drying as well as managing airborne, oil, and moisture contamination. | 0.5 | Intermediate |
| Compressed Air Systems | Compressed air systems are used in a variety of industries to supply process requirements, operate pneumatic tools and equipment, and to meet instrumentation needs. This course discusses compressed air system components, safety guidelines to follow while working with and around compressed air systems, common air compressor designs, compressed air conditioning systems, and air pressure and volume measurements. | 0.25 | Intermediate |
| Compressed Air Systems: Introduction to Performance Improvement | Compressed air is used widely throughout industry and is often considered the 'fourth utility' at many facilities. Almost every industrial plant, from a small machine shop to an immense pulp and paper mill, has some type of compressed air system. In many cases, the compressed air system is so vital that the facility cannot operate without it. This 3-hour online course discusses the basics of compressed air systems including compressor types, power sources used to drive the compressor, types of system controls, compressor system accessories, and uses of compressed air. This US Department of Energy sourcebook that this course is based on is designed to provide compressed air system users with a reference that outlines opportunities for system performance improvements. It is intended to make compressed air system users aware of the performance improvement potential, details some of the significant opportunities, and directs users to additional sources of assistance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Compressible Flow Components Analysis | The ideal subsonic nozzle, diffuser and thrust analysis is presented only for the air as the working fluid. The technical performance of mentioned compressible flow components is presented with a given relationship between temperature and pressure as a function of the Mach Number. This interactive online course provides the compressible flow components T - s diagrams and their major performance trends (stagnation over static temperature and pressure ratio values) are plotted in a few figures as a function of the Mach Number. In this course, you will become familiar with the compressible flow components (nozzle, diffuser and thrust), their T - s diagrams, operation and major performance trends. | 1 | Intermediate |
| Compressors and Pneumatic Tools | The purpose of this course is to teach the basic operating principles and general operating procedures for air compressors and the following pneumatic tools: jackhammers, tamps, pumps, circular air saws, and duct blowing rigs. The course shows how to use the tools efficiently for several construction and maintenance jobs. Emphasis is placed on the important safety precautions associated with using these tools. At the conclusion of this course, participants should have a basic understanding of how to operate an air compressor. They should also know how to use pneumatic tools safely and efficiently on a job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Compressors: Centrifugal and Axial | This course is designed to familiarize participants with basic concepts associated with the parts and operation of centrifugal and axial compressors. After completing this course, participants should be able to describe the main parts and the general operation of single-stage centrifugal compressors, multistage centrifugal compressors, and axial compressors. They should be able to describe the functions of compressor lubrication systems, seals, bearings, and common auxiliary devices. | 2 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Compressors: Operation of Centrifugal and Axial Types | This course is designed to familiarize participants with basic concepts associated with the startup, operation, and shutdown of centrifugal and axial compressors. After completing this course, participants should be able to describe the general functions of instrumentation and control devices used with centrifugal and axial compressors. They should be able to describe operator responsibilities associated with starting up, operating, and shutting down centrifugal and axial compressors. | 2 | Intermediate |
| Compressors: Positive Displacement | This course is designed to familiarize participants with basic concepts associated with the operation of positive displacement compressors. After completing this course, participants should be able to identify the main parts and describe the general operation of various types of reciprocating compressors and rotary compressors. They should also be able to describe operator responsibilities associated with starting up, operating, and shutting down compressors. | 2 | Intermediate |
| Condensate Recovery and Steam Traps | Whenever steam condenses in a process, it creates hot liquid condensate. It is the role of steam traps to remove condensate from steam lines and process equipment with a minimum loss of live steam. The condensate has economic value, so it is typically collected and reused. This module discusses the collection and re-use of condensate in a steam generation system. Three major classifications of steam traps are discussed, including their principles of operation, and their strengths and weaknesses. | 0.5 | Intermediate |
| Condenser Efficiency | This course is designed to teach participants how condenser performance can affect the efficiency of a generating unit. After completing this course, participants should be able to identify energy flows into and out of a condenser and know how these flows are related to the efficiency of the condenser and to unit heat rate. Participants should also be familiar with different methods of determining condenser efficiency, such as by checking parameters and indicators and using condenser performance curves and circulating water pump selection curves. In addition, participants learn how changes in condenser vacuum can affect unit heat rate and operating costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Conductors | Running cables and conductors is an integral part of electrical maintenance. The topics covered in this course include how cables and conductors are classified, the factors that must be considered in selecting a conductor or cable for a particular application, and procedures for installing, splicing and terminating cables and conductors used in low-voltage applications. | 1 | Intermediate |
| Confined Spaces in Construction | This course will define confined spaces and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces. | 1 | Fundamental |
| Conflict Management | When people work together, there will inevitably be disagreements. Some of these disagreements are minor, but some can turn into major conflicts. If conflicts are not resolved, they can lead to long-term tension and unhappiness among employees. This course illustrates how to resolve conflicts using the SLOW method, reasons for different points of view, and tips for face-to-face communication. Following the ideas in this course can help your team use conflict situations as an opportunity to solve work or personal problems, and therefore become more productive and unified. | 0.25 | Intermediate |
| Conflict Resolution | Dealing with conflict in the workplace can be difficult. Seeing a person with whom you have issues every day can be challenging and distracting. Resolving conflicts has a major positive effect on the work environment, making it happier and more productive. Having employees with this conflict resolving quality is an important part of creating a productive workplace. This conflict resolution training course highlights the important aspects of resolving conflicts in the workplace. The course offers a myriad of conflict resolution skills and strategies that will help employees better deal with disputes in the workplace. | 0.7 | Intermediate |
| Conflicting and Non-Existent Accessibility Standards | What do you do when you have conflicting accessibility standards? What about when there are no standards? How do you make sure your building or facility is compliant? This interactive online course will cover these scenarios and help you make sure that you are designing and building for accessibility. | 1 | Fundamental |
| Construction of AC and DC Circuits | This course will define series circuits and parallel circuits as well as series-parallel circuits. This course will also discuss resistance and current in each type of circuit. | 1 | Intermediate |
| Construction Project Documentation: Navigating Pitfalls | This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education. | 2 | Fundamental |
| Construction Project Management: Construction Practices and Systematic Project Management | In this course, we're going to present and discuss the management of field construction projects. We'll also cover management techniques for controlling cost, time, resources, and project finance during the construction process. Emphasis is placed on practical and applied procedures that have been proven effective. Effective management of a project also requires a considerable background of general knowledge about the construction industry. This interactive online course will familiarize you with certain fundamentals of construction practice. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 2 | Intermediate |
| Construction Project Management: Managing Time | Did you know the schedule plays a central role in construction project management? Developing an initial schedule is a powerful tool that you can use in managing various aspects of a project, including time, resources, production, and cost. This interactive online course concentrates on using the schedule to manage the time required to execute the construction processes. It begins by considering the project as a whole, determining how to shorten the overall project schedule, and looking at the cost trade-offs of expediting the project. It then focuses on current or upcoming parts of the project with the objective of managing the project components more effectively. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 1 | Intermediate |
| Construction Project Management: Production Planning | Did you know production planning begins well before the project is mobilized in the field and continues throughout the project until all field operations are closed out? Production planning is concerned with how project activities are going to be carried out. It establishes the methods to be used, the assignment of personnel, the movement of material to the workface, and the process of assembling the pieces. This interactive online course considers all resources that contribute to the job, including personnel, materials, construction equipment, the site, the environment, and anything else that might affect the job. It will also cover the lean construction process and BIM, which is beginning to change the way construction is managed and organized. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Construction Project Management: Project Coordination | Progress reporting provides the opportunity to analyze the current status of the project. Often, this will lead to rescheduling and corrective action to bring the project back within specified time parameters. This cycle of planning and executing activities, measuring and reporting progress, revising the plan based on current status, and updating the schedule is continued repetitively throughout the project. In this interactive, online course, we'll focus on managing the ongoing project. We begin by looking at detailed schedules used by the field supervisor to plan crew work on specific activities in the near term. Then we move on to measurement and reporting of progress. | 2 | Intermediate |
| Construction Project Management: Project Cost System | Did you know that managing cost for a construction project is equally important as managing time? It allows you to make decisions that will enable you to maximize resources. This interactive online course covers the various elements of the project cost cycle, starting with the estimate and moving through the project to collection of actual unit costs to be incorporated into the company cost database for use in starting the cycle again for a future project. We will also review the relationship between time and money. Although the details of a specific cost-control system vary substantially from one construction firm to another, the ensuing treatment can be regarded as being reasonably typical of current practice within the construction industry. | 2 | Intermediate |
| Construction Project Management: Project Estimating | If you were given the task of estimating the future expense of a unit of production in a manufacturing facility you could do it with considerable precision. A plant offers standard conditions, close controls, and consistent processes. Construction estimating, on the other hand, lacks standardization, presents challenging site locations and project conditions. Nevertheless, a skilled and experienced estimator, using cost accounting information gathered from similar previous construction projects, can do a reasonable job of predicting construction costs. The character or location of a project can present unique problems, but there are usually some basic principles and precedents that apply. This interactive online course will walk you through the steps involved in estimating construction projects starting with an overview of cost-estimating procedures and how the final project budget is reached. Then, you'll learn how to develop monthly progress estimates and change order estimates. Finally, you'll become familiar with details about specific estimates that you'll typically prepare. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 1 | Intermediate |
| Construction Project Management: Project Financial Management | Did you know the project manager bears the overall responsibility for financial management of the work on a construction project? This includes carrying out such fiscal duties as may be imposed by the construction contract and implementing appropriate monetary procedures according to the dictates of good business practice. Project financial management can involve a broad range of responsibilities. This interactive online course covers project cost breakdowns, the forecasted schedule of progress payments, preparation or approval of periodic pay estimates, and documentation required for final payment. You will also learn how to monitor project cash requirements during the contract period and maintain complete and detailed daily records of the project. | 1 | Intermediate |
| Construction Project Management: Project Planning | Project planning is central to project management and takes place at all stages. The plan is typically very simple in concept, though it may be quite complex in execution. Additional participants in the process, such as designers, contractors, specialty contractors, and material suppliers also plan for a project. Their plans often include much greater detail but are limited in scope in order to execute their part of the project. Project planning is essential to any task, whether it be management oriented or focused on execution in the field. The product of the plan is often a schedule. In this course, you will see that the planning process, resulting in the project schedule, is what ties all of the elements of project management together. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 1 | Intermediate |
| Construction Project Management: Project Scheduling Applications | In previous courses in this series, we focused more on tactical use of the schedule to manage specific components of the project, such as production, time, resources, and costs. In this interactive, online course, we'll consider strategic scheduling applications as they relate to the overall project, including legal aspects of the schedule. This course considers the role of the schedule and the variety of operational schedules available to the project manager. It also discusses the ways scheduling information can be organized and presented. | 2 | Intermediate |
| Construction Project Management: Project Scheduling Concepts | How would you account for weather delays in a construction project schedule? What about the availability of labor and equipment? How much time should you allow for each subcontractor to complete their work? In this interactive online course, we'll answer those questions. You'll learn how to determine the duration for individual activities and the calculation process for project times. Through examples, you'll discover new terminology for scheduling, including early and late start and finish, float, critical activities, and lag time. You'll then convert the project days-based schedule into calendar dates. We'll also discuss the pros and cons of the bar chart in construction project scheduling and how computer applications can save time and provide an array of project data in various forms. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved. | 2 | Intermediate |
| Construction Project Management: Resource Management | Much of the job of a project manager, as well as the job of a field supervisor, focuses on the efficient investment of resources to achieve the project objectives. A resource can be considered anything that adds value to the project. When we talk of resources in the context of construction, we typically think of manpower, equipment, and materials. In addition to what we normally understand manpower to mean—that is, craft workers who actually do the work on the project—there are many other people who add value to the project.<br>It is the job of the project manager to manage all of these resources in support of efficient execution of the project. This interactive, online course will focus on methods and procedures involved with the management of the three primary resources of manpower, equipment, and materials. | 1 | Intermediate |
| Contactors and Relays | Contactors and Relays is a course designed to familiarize participants with the operation and use of magnetic contactors and relays. After completing this course, participants should be able to describe the operating principles of magnetic contactors and relays, and explain how both types of devices are used in electrical systems. They should also be able to describe the components and operation of low-voltage remote control switching systems. | 2 | Intermediate |
| Continuous Process: Field Devices: Analog Configuration | This course is designed to familiarize participants with basic procedures for configuring traditional and smart analog field devices. After completing this course, participants should be able to explain how to set zero and span and perform a calibration procedure on a traditional analog transmitter. They should also be able to explain the basics of how to configure a smart analog field device using a portable communicator or a laptop PC. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Analytical | This course is designed to familiarize participants with input field devices that perform online analyses. After completing this course, participants should be able to describe common applications and procedures that are associated with the use of online analyzers. They should also be able to describe some of the many different types of online analyzers that are used in continuous process systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Digital Configuration with a DCS | This course is designed to familiarize participants with basic procedures for using a distributed control system (DCS) to configure digital field devices. After completing this course, participants should be able to explain how to use the Honeywell TDC 3000 and the Fisher-Rosemount DeltaV to configure a digital field device. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Continuous Process: Field Devices: Level and Flow | This course is designed to familiarize participants with input field devices that sense and monitor level or flow. After completing this course, participants should be able to describe the basic operation of various types of level measurement and flow measurement devices. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Pressure, Temperature, and Weight | This course is designed to familiarize participants with input field devices that sense and monitor temperature, pressure, or weight. After completing this course, participants should be able to describe the basic operation of various types of temperature, pressure, and weight transducers and transmitters. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Field Devices: Using Field Communicators | This course is designed to familiarize participants with basic procedures for using field communicators to configure smart analog field devices. After completing this course, participants should be able to explain how to configure smart analog transmitters using a HART communicator, a Honeywell communicator, a Yokogawa communicator, and the Foxboro Local Display Module. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Multiple Loop Control | This course is designed to familiarize participants with the basic operation and use of multiple loop control. After completing this course, participants should be able to explain the basic operation of multiple single loops, cascade control, ratio control, feed-forward control, and special connections that are used with multiple loop control. They should also be able to use a piping and instrumentation diagram (P&ID) to trace boiler control functionally. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Pneumatic Controls | This course is designed to familiarize participants with the basic operation, maintenance, and calibration of components in a pneumatic control system. After completing this course, participants should be able to describe how to service the various devices that help dry and filter the air and how to check pressure control devices in the system for proper operation. They should also be able to describe the basic operation and maintenance of some typical control components in a pneumatic system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Principles | This course is designed to familiarize participants with some of the basic material, process, and system characteristics that can affect process control. After completing this course, participants should be able to identify and describe some basic factors that affect process control. They should also be able to describe common process control methods and the operation of loops that control critical process variables. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Single Loop Control | This course is designed to familiarize participants with the basic operation and use of single control loops. After completing this course, participants should be able to explain the basic operation of a feedback control loop, describe how the proportional-integral-derivative (PID) control algorithm works, and identify and describe features that may be used to enhance the performance of a PID controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Smart Controllers | This course is designed to familiarize participants with the operation and use of smart controllers. After completing this course, participants should be able to describe basic procedures for installing, configuring, operating, and tuning smart controllers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Troubleshooting DCS I/Os: Procedures | This course is designed to familiarize participants with basic procedures for troubleshooting the inputs and outputs of a distributed control system (DCS). After completing this course, participants should be able to explain how to gather information about a DCS I/O problem, identify possible causes of the problem, test the possible causes, and finish up the troubleshooting procedure. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Troubleshooting Loops | This course is designed to familiarize participants with basic procedures for troubleshooting control loop problems. After completing this course, participants should be able to explain how to use a systematic troubleshooting procedure to troubleshoot problems in control loops. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Continuous Process: Tuning Loops | This course is designed to familiarize participants with the basic principles of tuning control loops. After completing this course, participants should be able to describe how to prepare for tuning a loop and how to tune a loop manually using a systematic trial and error method, the Ziegler-Nichols open loop method, and the Ziegler-Nichols closed loop method. They should also be able to describe how tuning can be accomplished by the auto-tune function, by artificial intelligence features, and by tuning software. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Control Equipment | The components of a coal handling system are operated with control equipment. The proper operation of the control equipment ensures that the components are started and stopped in the correct sequence so that coal moves smoothly from one component to the next. If one of the components in the sequence is not operated properly, the entire system could come to a stop, and equipment could be damaged. This course describes how control equipment is used to operate coal handling components so that they work together smoothly as a system. Troubleshooting procedures that can be used to determine the cause of a coal handling system malfunction also are covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| ControlLogix®: Basic Programming | The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs, including exceptional power and motion control.<br>This interactive online course will introduce you to the ControlLogix® program editor. The course provides an understanding of the program logic, Input and Output instructions, series and parallel instructions, ladder logic and tags.<br>This course is designed to familiarize you with the functions, architecture, and software in use in the ControlLogix® PLC platform, providing you with basic skills that enable you to comfortably interact with the programming software and communicate with the PLC processor. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| ControlLogix®: Communications and Advanced Programming | Programmable Logic Controllers, or PLCs, are the brains behind much of the equipment that runs in manufacturing facilities, warehouses, and other industrial operations. These computers require specific programming for each industrial machine; therefore, it is necessary to understand the logic behind the programming for each task. This interactive online course provides information on basic communication instructions for ControlLogix® PLCs and will also discuss more advanced programming techniques using program instructions, including bit, timer/counter, and compare instructions, as well as move/logical, math conversion, and program control instructions. | 0.5 | Intermediate |
| ControlLogix®: Configuring Hardware and Software | The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs, including better power and motion control. This interactive online course will allow you to gain a solid understanding of hardware, software and communication concepts inherent to ControlLogix®'s RSLogix5000 ladder logic programming software. This course is designed for technicians, maintenance personnel or engineers who want to improve maintenance and troubleshooting skills in order to minimize machine downtime. This course will introduce you to tasks involved in creating a project and the steps involved to establish communications and download a project to the controller. This course also discusses how to create new file menus to enable the user to configure the projects created. | 0.5 | Intermediate |
| ControlLogix®: Introduction to Basic System, Software & Hardware Components | The ControlLogix® series of programmable logic controllers are the PLC's of the future. The smallest controller has advanced capabilities above existing PLC's. They have more computing power and handle motion control better. Progressive companies that are planning for advancing their process are changing to the ControlLogix series. Rockwell Automation is leading industry's advancing technology requirements. | 0.5 | Intermediate |
| ControlLogix®: The Project Structure | The ControlLogix® series of programmable logic controllers are the PLCs of the future. Even the smallest controller has advanced capabilities above existing PLCs with greater computing power and motion control. The purpose of this interactive online course is to provide an understanding of the ControlLogix® project structure and PLCs. This course reviews the basic elements of a project and explains the functionality of each element, as well as introducing the tools which are used to generate programs or projects for ControlLogix® PLCs using Rockwell Automation's RSLogix 5000®. | 0.5 | Intermediate |
| ControlLogix®: Troubleshooting | Downtime is extremely costly in today's industry. Even when using preventative maintenance and other techniques to eliminate downtime, failure will still occur. This interactive online course will introduce you to ControlLogix troubleshooting process, and the tools used for troubleshooting controller faults and input/output modules. The course will teach how to find and clear faults both manually and through the controller. Being able to quickly and accurately troubleshoot a programmable logic controller system, or PLC, is a vital skill for all maintenance technicians. | 0.5 | Intermediate |
| Conveyor Belt Replacement | Belt conveyors are used in manufacturing and industrial environments to move materials from one location to another. Conveyors can reduce workloads and make production more efficient. They can also prevent injuries that result from carrying materials manually. After time however, they become worn and must be replaced. This course will discuss the steps necessary to remove and replace conveyor belts. | 0.25 | Intermediate |
| Conveyor Types and Components | Hundreds of conveyor types are used in manufacturing and industrial environments to move materials from one location to another. Conveyors can reduce workloads and make production more efficient. They can also prevent injuries that result from carrying materials manually. Different material handling systems require different conveyor types to move products or raw materials effectively. This module will discuss common components of conveyors as well as specific conveyor types and their uses. | 0.25 | Intermediate |
| Conveyors | Coal handlers operate and maintain the equipment used to transport coal to a plant for burning or to a coal pile for storage. This equipment includes conveyors, feeders, and chutes. Coal handlers must also inspect and maintain equipment such as magnetic separators and cleaning devices, which help transport operations run smoothly. This course explains how the equipment involved in transport operations works, and how it should be inspected and maintained. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Cooling and Chilled Water Systems | When equipment runs, it generates heat. Overheating can lead to equipment malfunctions and possible downtime. In order to prevent this, cooling and chilled water systems are set up to continually remove heat from the components to keep them within a desired temperature range. This course describes the design of cooling and chilled water systems as well as the principles of operation for both chilled and cooling water systems. | 0.25 | Intermediate |
| Core: Principles of Calibration | This course is designed to familiarize participants with the basic principles associated with the calibration of input field devices and control loops. After completing this course, participants should be able to explain how to test, adjust, and calibrate various types of gauges and transmitters. They should also be able to explain how to test, set up, and adjust input field devices and calibrate control loops. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Cost Estimating: Fundamentals | Engineers, architects and contractors are often asked to prepare cost estimates when working on a new project. This 1-hour interactive online course takes you through the process discussing where, in the various stages in project development, cost estimates are made. Through illustrations, you will consider different methods of cost estimating, the level of project detail required for each, and when the use of each method is indicated. You will understand the uncertainties associated with a bid due to level of detail available and the economics of inflation. You will learn to recognize these uncertainties and include contingencies and adjustments for inflation. For those who are new to cost estimating, this course is an introduction. You may find yourself going over sections more than once. For the experienced Estimator, you will find this course a guide and a reference as the only way for any Estimator to improve is to practice what they have learned. Move on through this course and into the field of cost estimating. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education. | 1 | Fundamental |
| Co-worker Coaching | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Co-worker Coaching human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Create a Windows App Using Free Tools and No Coding | Won't it be cool to create your own app? There is so much joy in seeing your app published or finding unique ways to share your content. Although, many of us do not have coding knowledge or simply do have the time to learn a programming language. Those obstacles should not stop us for publishing our ideas and content. Nor should the barrier of expensive development costs - either in the form of programmers or software tools or web services. This course is aimed at those who may or may not have content created but are unable to share their content via mobile or desktop apps because of time, costs, or IT resources and has been put together to show you how you can accomplish your goal of creating and publishing your own app without enduring the pain of learning a complicated code or paying additional fees. The course begins with the concepts and the design considerations one might think about when developing their app. And since this course uses whatever free resources are currently available, time is spent discussing the limitations present. After framing the design and objectives, the course creates apps step by step. The course builds upon itself as it progresses. The learning starts simple and then adds more complex content. At the end - and actually even at points up to the end - you will have your very of Windows app to share, use, and publish in the Windows store. There are options to port your app over to other operating systems and platforms briefly discussed at the end. You will have the pride and joy of knowing you accomplished something great. It will open your mind to all the possibilities that await and ignite your creative and problem solving drive. Ready? Let's build something.' | 2.5 | Intermediate |
| Creating a Code of Conduct | Ever wonder if a certain behavior is appropriate or out of bounds? Perhaps it is appropriate in one setting, between certain people, but not appropriate in another setting. Well, wonder no more! This course will take you through the steps to determine appropriate conduct and to navigate tricky or touchy ethical situations. To do or not to do . . . that is the question employs application exercises and a rich multi-media process, to increase your awareness and understanding and to provide you with a guide to navigate the sometime murky waters of ethics and appropriate code of conduct. | 0.5 | Intermediate |
| Creating Word Templates | Don't re-create documents over and over! Learn about templates in Word to increase your productivity, save time, and create consistency. Being able to consistently create documents that have a uniform look and adhere to company standards can be challenging and time consuming. Use the templates feature in Word to do this effortlessly. Learn basics about effective design and using headings, sections, and your company's logo, fonts, and colors to produce professional and effective documents that will stand out! | 0.5 | Fundamental |
| Critical Facilities - Emergency Electric Power | Providing emergency electric power is of critical importance for several types of facilities, and can be mandated by regulatory agencies. For example - emergency egress lighting, hospital emergency rooms, cooling for medical supplies storage, and protection from interruption of public utilities. These systems also help in preventing significant economic losses and, in some cases, disastrous results from natural events. This course presents key information regarding emergency electric power. Included in the topics covered are emergency vs. standby systems, applicable codes, terms and definitions, system components, environmental considerations, and fuel systems. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information extremely valuable. | 2 | Fundamental |
| Critical Thinking and Problem Solving | Are you constantly firefighting? Does it seem as though problems always appear at the last minute or just before the weekend? In this course, you will learn strategic steps to prevent much chaos and solve new or recurring problems. Through the use of application exercises and rich multimedia process, your ability to think critically and solve problems effectively and in a timely manner will increase thus propelling your end results to new heights. | 0.6 | Intermediate |
| Crude Distillation Operations | Operators must properly monitor and control the distillation process in the crude unit so that the products leaving the unit meet process specifications. This course provides an overview of the operation of a crude distillation unit. The steps that crude oil goes through in the crude unit, process variables, and conditions that affect unit operation will also be examined. This course will also consider problems that might arise in the crude distillation unit and how to correct them. | 1 | Intermediate |
| Current, Voltage, and Resistance | Electricity is a form of energy, and when considering circuits, electricity is defined as a flow of electrons. The flow of electrons is called current. Current flow occurs under the influence of a charge difference that is called voltage. Resistance is the tendency of a component to hinder the flow of current. This course briefly reviews the aspects of atomic structures that allow the flow of electricity and then describes the relationship between current, voltage and resistance in an electrical circuit. | 0.25 | Intermediate |
| Cybersecurity Awareness for Business Leaders: Creating A Cybersecurity Culture | With today's wide range of threats, it is a must to ensure minimum standards of security. We often think that purchasing expensive security appliances can take care of it, but it's not even close. In this course, we learn the importance of injecting a cyber security culture in the mind of the people, executives and employees, understanding the roles of each department and key people to sustain the program, how to lead our teams for a more secure digital life and finally the importance of yearly training in maintaining constant secure environment. | 1 | Fundamental |
| Cybersecurity Awareness for Business Leaders: Incident Preparedness and Management Planning | Maybe there is no way to eradicate threats and incidents completely, but surely being prepared and ready to anticipate incidents, can make the difference in limiting the damages.<br>In this online training we will identify the best practices to mitigate incidents, different types of cyber security insurance; how to get our team ready for attacks and how to effectively manage the crisis when an incident occurs. Moreover, we will learn the importance of post-event crisis management. | 0.5 | Fundamental |
| Cybersecurity Awareness for Business Leaders: Laws and Global Compliance Standards | When it comes to compliance, business and corporate management should keep a close eye at being obedient to all of the legal laws and regulations in regards to how they manage the business and preserving their data. In many cases, deviations from the baselines has cost businesses huge penalties and fines, as well as delayed losses; therefore, in this training, we will be looking at regulations and their importance, key items to secure our business and personal data. | 0.5 | Fundamental |
| Cybersecurity Awareness for Business Leaders: Safeguarding Against Social Engineer Attacks | Social engineering has become the favorite tool for hackers to target and breach sophisticated networks, it remains an open window in almost every environment. in this course we will gain knowledge about the latest social engineering techniques and how hackers can obtain business and personal information about us to craft targeted attacks that may result in huge damages. We will learn also to identify intellectual property and how to safeguard it. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: Classifying and Safeguarding Data for Corporate and Personal Use | Failing to become cyber aware, failing to put measures in place that will protect our devices and network is also failing to protect our personal information, our place of business, and our customers. In this interactive online course we will discuss why classifying and safeguarding data is a priority that must not be ignored. We will also list the main types of classifications and state objectives for securing data. | 0.5 | Fundamental |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Cybersecurity Awareness for Employees: End-User Best Practices | We live in a busy, busy world. When it is so easy to connect to the internet and access vast amounts of information, it is easy to forget the dangers that lie in wait. From hotspots to password management, this interactive online course will walk you through end-user best practices. We will also discuss the importance of administrative rights, define types of physical attacks against privacy, and recommend ways to protect against malwares and viruses. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: Security Awareness Essentials | In our digital world today, attackers seem to be lurking behind every click of the mouse or tap on the screen. Many people forget that they are the keepers of their own security safety and the security safety of the institutions for which they are employed. In this interactive online course, we learn about the who, what, how, and why of security attacks. We discuss the potential losses associated with a successful security breaches by hackers and will understand the different way in which those security breaches can occur. Finally, we cover important actions you can take within your organization to limit security risks. | 0.5 | Fundamental |
| Cybersecurity Awareness for Employees: Social Engineering | Social engineering is the art of extorting information from employees that can assist a hacker to breach the security of an organization and can be done by a human or it can be done digitally. In this interactive online course we will define phishing and identify common features, examples, and how to avoid phishing scams. We will also discuss identity theft and how to protect against it. | 0.5 | Fundamental |
| Cybersecurity Overview | The convenience of web access makes it easy to forget that we need to protect and care for our information. This introductory course provides an overview of cybercrime and cybersecurity, including the basics of cybersecurity along with the effects of cybercrime, the types of cyber threats and how users are susceptible. | 0.25 | Fundamental |
| Cycle Efficiency | This course is designed to familiarize participants with the concept of a boiler envelope and with the input/output method and the heat loss method of determining boiler efficiency. After completing this course, participants should be able to explain what a boiler envelope is and identify energy flows into and out of the boiler envelope. They should also be able to describe how the input/output method and the heat loss method are used to determine boiler efficiency, and identify factors that must be considered when each method is used. Also covered are factors over which the boiler operator has some control. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Data Centers: Operations & Maintenance, Upgrades, and Expansions | If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turnover, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a lights-out data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations & Maintenance, or O&M program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later. In addition to a robust O&M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over $100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena. | 1 | Intermediate |
| Data Centers: Trends, Technologies, and Efficiencies | Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are. | 1 | Intermediate |
| Databases, Spreadsheets, and Word Processing | A database program assists in managing large collections of information. A database makes it easy to store, sort, and maintain information. This course will discuss database design, reports, spreadsheets, word documents, and toolbars. | 0.25 | Intermediate |
| DC Fundamentals Review | The fundamental relationships between current voltage and resistance in direct current (DC) circuits are basic to understanding all types of electricity and electrical circuitry. This course is intended as a general review of basic electrical concepts and circuit analysis for participants already possessing some background in electrical theory. | 1 | Intermediate |
| DC Generator Basics | A simple direct current (DC) generator consists of an armature coil with a single turn of wire. The armature coil cuts across the magnetic field to produce a voltage output. This course describes commutation in a DC generator, the major parts of a DC generator, and three basic ways a DC generator can be constructed. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 1 | This course provides participants with an introduction to direct current (DC) motor controller classification and parts identification, controller diagram symbols and schematics, and how DC motor controllers change motor speed and direction. | 1 | Intermediate |
| DC Motor Controller Maintenance, Part 2 | This course introduces participants to the basic steps for troubleshooting a direct current (DC) motor controller, different types of controller diagrams and how to read them, methods for identifying mechanical problems, and the maintenance needed to prevent or correct these problems. | 1 | Intermediate |
| DC Motor Maintenance | Anyone who is responsible for maintaining direct current (DC) motors in an industrial facility has to have a thorough understanding of the specific techniques and procedures that are used to keep DC motors in top operating condition. Familiarity with the ways that DC motors operate and the methods used to classify and identify them is also important. To help prepare electrical maintenance personnel for working on DC motors, this course contains specific information covering DC motor operation and classification as well as detailed descriptions of procedures for troubleshooting, disassembling, inspecting, and reassembling a typical DC motor. | 1 | Intermediate |
| DC Motor Operation | A DC motor is an electrical device powered by direct current, or DC. DC is a type of electrical current that flows in one direction only, from sources such as batteries or solar panels. DC may also be produced through the use of a rectifier, which is an electrical device that converts alternating current (AC) to DC. Although motor designs may vary, all DC motors perform the same basic function. They convert electrical energy into mechanical energy to spin, lift, wind, or move objects. | 0.25 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| DC Motor Types | DC motors are electrical motors powered by direct current, or DC. DC is a type of electrical current that flows in one direction only, from sources such as batteries or solar panels. DC may also be produced through the use of a rectifier, which is an electrical device which converts alternating current (AC) to DC. This module will describe the design, operation, and applications of series, shunt, compound, permanent magnet, and separately excited motors. | 0.25 | Intermediate |
| DC Power in the Data Center | Alternating Current (AC) power has been the default for data centers due to many factors, such as equipment availability and familiarity. As companies and agencies push for better energy efficiency, Direct Current (DC) power may become a more viable choice for energy, reliability, and availability of a data center. This course walks through a typical data center power chain then compares using DC power with discussion on five of the most typical DC power voltages in use today. | 1 | Intermediate |
| Decision Making | Decision Making is a course designed to familiarize participants with techniques for making informed decisions and implementing them successfully on the job. After completing this course, participants should be able to describe common examples of poor decision making, describe some general types of decisions, describe several questions that should be asked before a decision-making process begins, explain how to define the desired outcome for a decision, and describe how to gather information to make an informed decision. Participants should also be able to describe how to build consensus during the decision-making process, explain how to use an impact/effort grid and weighted voting in the decision-making process, and describe the steps for successfully converting a decision into action. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Delivery Truck Maintenance | Many businesses depend heavily on their fleet of vehicles. In some businesses, such as package or propane delivery, or taxis, the fleet really is the business. In other cases, such as trades like electricians and plumbers, the vehicle is somewhat secondary to the actual job being performed, but no less important. In order for businesses which rely on vehicles to thrive, those vehicles which make up the fleet need to be able to operate safely and properly as close to 100% of the time as possible. | 0.5 | Intermediate |
| Design of Utility Infrastructure | Utilities and their infrastructure are one of the main facilities that support our modern society. From drinking water to telecommunications, underground utilities provide the basic services for our communities. Thus, their design is a critical component of construction projects. Through this interactive online course, engineers, architects, planners and contractors will learn design criteria for the design of different utility types, from gravity to pressurized flow facilities. | 2 | Fundamental |
| Designing and Specifying Pervious Concrete | This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydrologic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast. | 2 | Intermediate |
| Designing Beautiful Documents | Create perfect documents with five easy techniques. Have you ever noticed that some documents look perfect? They have a certain polish, a certain style, that tells everyone who sees them that THIS was created by a professional? There is a science to creating beautiful documents. In this course, communications guru Jamie Gillenwater demonstrates the five techniques that anyone can use to create beautiful, professional, respectable documents. | 0.5 | Fundamental |
| Designing Foundation Repairs | What is causing that crack in the building? How can you repair it? Building foundations provide structural support to buildings but are often damaged and rendered nearly useless by many natural events (hurricanes, drought, excessive rain, etc.). Most foundations can be repaired and returned to their original load capacity, but each foundation damage case can present unique challenges depending on the extent of damage, the foundation material used, the foundation depth in the ground, and the loads being carried by the foundation. In this interactive online course, we will discuss different types of building foundations and several types of causes of foundation failures. We will also cover methods for foundation repair, as well as new materials and technologies used in repair. | 2 | Intermediate |
| Designing PEX Plumbing Systems to Optimize Performance and Efficiency | What is PEX and how should you best utilize it in your project? Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide superior reliability, durability and safety. This interactive online course will demonstrate how the properties of PEX tubing can improve the health, safety and welfare of building occupants through reliable long-term delivery of clean water without pipe degradation. Many designers layout PEX plumbing in the same way as copper plumbing systems, without taking advantage of the material flexibility, and increasing installation costs. Other designers use too much pipe, potentially delaying delivery of hot-water to fixtures. Therefore, this course will also explain how PEX systems allow designers to reduce materials, save installation time, and provide faster delivery of hot-water to fixtures by comparing 12 design examples. Finally, using empirical test data generated by NAHB-RC (now Home Innovations Research Labs) comparing various PEX designs, this course will also provide answers about the best ways to design PEX plumbing systems to optimize performance. | 1 | Fundamental |
| Developing an Employee Safety Training Program | People working in facilities, and in industry, need a solid foundation with respect to safety training, and leading people, and employees. So, this course will provide you with that solid foundation that will help you in developing a valid, and detailed, safety training program for your group. This program can then be applied to your organization's specific safety program's requirements for employee training. This course will provide you with information on Emergency Action Plans, Medical Emergency Plans, Lockout/Tagout requirements, Confined Space Entry Procedures, and other critical topics. | 1 | Fundamental |
| Developing and Implementing an EPA RMP | Any facilities that manufacture, use, store or otherwise handle certain extremely hazardous chemicals will be subjected to the EPA's Chemical Accident Prevention regulations at 40 CFR part 68.To comply with this regulation, a facility must develop and submit an EPA Risk Management Plan, or RMP, and implement it in the facility. The primary goal of an EPA RMP is to protect communities from the release of toxic or flammable chemicals that are prone to cause immediate, serious harm to public and environmental health. Thus, it is important for the practitioners to have in-depth knowledge on how to develop an EPA Risk Management Plan so it can be applied in their respective facilities. This course will provide the practitioners and participants with an overview of the EPA Risk Management Plan, the history of the RMP Rule, and requirements for compliance with the EPA's 112(r) Risk Management Program rule (40 CFR Part 68). The different program levels of an EPA RMP will be discussed, in addition to steps for developing a Risk Management Plan. The course will also address the differences between OSHA PSM and EPA RMP Program Regulations, different elements of a RMP Plan, and how to conduct a hazard assessment. Details on dispersion modeling and consequence modeling and the selection and application of these models will be covered in this course, as well as risk communication strategies and the requirements for an Emergency Response Program. | 2 | Fundamental |
| Developing Performance Goals & Standards: 01-The Value of Planning | Experience the importance of planning and developing goals for your team. | 1 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Developing Performance Goals & Standards: 02-Creating Performance Standards | Identify and set performance standards that are S.M.A.R.T. (specific, measurable, attainable, results-oriented, and time-framed). | 1 | Intermediate |
| Developing Performance Goals & Standards: 03-Your Path to Developing Performance Goals and Standards | Learn and apply the five-step process for setting and discussing team member performance goals. | 1 | Intermediate |
| Developing Performance Goals & Standards: 04-Mastering Developing Performance Goals and Standards | Practice Developing Performance Goals and Standards in a full scenario situation. | 1 | Intermediate |
| Developing Performance Goals & Standards: 05-Developing Performance Goals and Standards Health Check | Test your ability to apply Developing Performance Goals and Standards concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Developing Your Leadership Style | Want to know all the details? Prefer to oversee? Like to be involved? Everyone has a different style, whether in dress and music or in leadership. In this course you will learn to identify your personal leadership style and how to incorporate your style into any role through the use of application exercises and a rich multimedia process. Knowing your style will allow you to be more effective in choosing team members, managing up or down, and in getting your own work done. | 1 | Intermediate |
| Diagrams: Blueprints | This course is designed to familiarize participants with the basic features of construction blueprints. After completing this course, participants should be able to describe various types of blueprints, identify lines, symbols, and abbreviations that are commonly found in blueprints, and explain how to properly care for blueprints. | 2 | Intermediate |
| Diagrams: Industrial Process Systems | This course is designed to introduce participants to plant system diagrams and diagram symbols. After completing this course, participants should be able to identify and describe the purpose of several kinds of system diagrams, and describe the information found on each type. Participants should also be able to identify symbols commonly used on piping and instrumentation diagrams (P&IDs), describe the types of information typically found on a legend, and use a P&ID to locate the components of a system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Diagrams: Piping and Instrumentation | This course is designed to familiarize participants with the use of piping and instrumentation diagrams (P&IDs). After completing this course, participants should be able to describe the kinds of information that can be found on a P&ID and explain why this information is useful. They should also be able to explain how to use P&IDs to troubleshoot system problems. | 2 | Intermediate |
| Digital Logic | Because nearly all computers and digital devices use digital logic, it is important that technicians who work on this equipment be familiar with its concepts and principles. This course focuses on the basic principles of digital logic and of logic gates. The technician who understands these principles and operations have a much easier time troubleshooting digital equipment. Being able to understand the computer's logical operations is the key to successful troubleshooting. | 1 | Intermediate |
| Digital Multimeters and Troubleshooting | A digital multimeter is a single instrument that is capable of measuring voltage, current, and resistance, so it is useful for troubleshooting electrical circuits and equipment. Voltage measurements can be made between any two arbitrary points in a circuit or relative to a single absolute ground point. Either method can be used to isolate component performance problems within a circuit. Current measurements with a multimeter require incorporating the meter into a circuit, so they are more difficult to make. Voltage and current measurements require that a circuit be energized. Resistance measurements require that the power be off and the tested component isolated from the rest of the circuit. | 0.5 | Intermediate |
| Digital Transformation: Benefits of a Digital Corporate Culture | When we talk about digital transformation, we usually think about the adoption of modern devices, changes in corporate processes, or the development of a new business model. However, we don't usually think about how the workforce will respond. Regardless of what industry the organization operates in, or what the current culture looks like, having a digital corporate culture can benefit an organization. This course will highlight some of these benefits. | 0.2 | Intermediate |
| Digital Transformation: Challenges Organizations Face by Not Embracing Technology | Some organizations view digital transformation as costly, unnecessary, time-consuming, and not worth the investment. Others admit to not being able to grasp the complexity of the technology. While these concerns are understandable, not embracing digital tools can create challenges for organizations. This course will highlight and discuss several of these challenges. | 0.2 | Intermediate |
| Digital Transformation: Five Ways a Digital Transformation will Alter Day-to-Day Operations | When integrating digital technology into a business infrastructure, its important to understand how it will redefine the organization from the inside out. A digital transformation is disruptive. The shockwaves it sends throughout the organization will be felt by executives, employees, business partners, customers, clients, and potentially the public at large. To better understand what changes an organization may face, this course will discuss five ways a digital transition will alter day-to-day operations. | 0.2 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
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| Digital Transformation: Four Areas to Consider When Evaluating a Digital Transformation | Digital transformation may mean rethinking things from the ground up and implementing digital technology where necessary. This might require a careful analysis of all areas to determine what systems will improve productivity and fuel corporate growth. To get started, here are four areas that organizations should consider:<br>Communication<br>Productivity<br>Marketing<br>Security | 0.2 | Intermediate |
| Digital Transformation: Four Steps to Implementing a Digital Transition | Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition its important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course. | 0.2 | Intermediate |
| Digital Transformation: Things to Consider Before Making Changes | All organizations need a digital transformation strategy. However, don't fall into the trap of thinking that this is accomplished by simply adding more technology. Before creating a strategy, it's important to consider the impact the transition will make both inside and outside the organization. This course will discuss four things to do before making changes. | 0.2 | Intermediate |
| Digital Transformation: What is Big Data? | Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course you'll learn what this means for businesses and how Big Data is already transforming different industries. | 0.2 | Intermediate |
| Digital Transformation: What is Blockchain? | Bitcoin, Ethereum and other cryptocurrencies made headlines in 2017 and 2018 and began disrupting commerce, finance, and currency in a variety of ways. The technology behind cryptocurrency is known as blockchain, and it has created fresh opportunities for businesses and financial institutions around the world. In this course you will learn about how blockchain works, why its gaining popularity, and how its being used in organizations today. | 0.2 | Intermediate |
| Digital Transformation: What is Digital Transformation? | Changes in technology continue to shape our day-to-day lives and alter the way we interact with the world around us. Changing technology has also prompted - and sometimes forced - organizations to restructure the way their business operates. These changes made by organizations to integrate developing digital processes is known as Digital Transformation. In this course, you'll learn more about what Digital Transformation is, and how its impacting almost every organization. | 0.2 | Intermediate |
| Digital Transformation: What is the Internet of Things? | We live in a connected world where devices can connect to the internet and send information to people, devices and systems. This network of connected things is known as The Internet of Things or IoT. In this course you will learn how the Internet of Things is evolving and explore the different areas where IoT is having the biggest impact. | 0.2 | Intermediate |
| Diodes and Semiconductor Basics | A diode is simply the main building block of semiconductors. It's a small electronic device that limits current flow to one direction. This course covers types of diodes, how to identify diodes, transistor construction, types of transistors, and atomic theory of semiconductors. | 0.5 | Intermediate |
| Direct and Alternating Current | Most electric power is generated and consumed in the form of alternating current (AC), and most meters that measure energy consumption are designed to measure AC power. Many of the principles associated with direct current (DC) circuits also apply to AC circuits. This course describes variations that account for differences between DC power and AC power. | 1 | Intermediate |
| Disabilities in the Workplace | A disability is defined as a physical or mental impairment that substantially limits one or more of a person's major life activities. Employers often struggle with how to respond and cope with workers with disabilities, but learning the basics about etiquette, as well as rights and responsibilities as outlined by the American Disabilities Act, or ADA, can make the situation better for everyone. This course describes the ADA, the benefits of hiring workers with disabilities, types of disabilities, reasonable accommodations, interviewing and etiquette, as well as how to prevent and deal with discrimination. | 0.5 | Intermediate |
| Discipline | Discipline is a course that provides participants with guidelines for preventing discipline problems and presents some techniques for dealing effectively with discipline problems when they arise. After completing this course, participants should be able to describe ways in which supervisors affect discipline in the workplace, reasons why discipline problems occur, ways of preventing discipline problems, ways of handling discipline problems once they arise, and the basic steps for using positive discipline and progressive discipline. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Discrimination in the Workplace | 100,000 charges of workplace discrimination are filed every year. Workplace discrimination is the unfair or illegal treatment of a person based on their race, color, religion, sex, national origin, age, or disability. Discrimination amongst employees can contribute to a hostile work environment and negative company culture, leading to lower efficiency and high employee turnover. This course raises awareness by discussing the civil rights laws protecting people from discrimination, the types of discrimination, and how discrimination can affect the workplace. | 0.25 | Intermediate |
| Discrimination Prevention | Discrimination is a big deal. Regardless if you are the one being discriminated against, the one doing the discriminating, or if you are seeing it happen around you, discrimination is real and it can be a serious problem. In 'Dealing with Discrimination in the Workplace' you will learn the steps to 1) help you recognize when discrimination is occurring, 2) identify how to acknowledge the situation, and then 3) know how to proceed to eliminate the problem. Through the use of application exercises and a rich multimedia process, you will gain the skills you need to truly identify, address, and deal with discrimination. | 0.5 | Intermediate |
| Distillation: Basic Principles | Many of the products we use every day are produced from raw materials. Distillation is a process often used to turn raw materials into finished products. Because distillation is involved in the production of so many products, it's important plant operators understand how it works.<br>In this interactive, online course we will begin by discussing the basic principles of distillation. We will define terms related to states of matter, heat and temperature, distillation, and pressure. We will also discuss some basic distillation processes, including separation of liquid mixtures, batch processes, and continuous distillation. | 0.5 | Intermediate |
| Distillation: Basic System Components and Operation | Can you discuss the basic components in a distillation system? This online interactive course is designed to familiarize you with the basic components and operation of a typical distillation system. After completing this course you should be able to describe the functions of the major components of a distillation system and describe how the distillation process occurs in a distillation tower. You should also be able to explain how refluxing and reboiling affect product purity and how bubble caps and packing affect the distillation process in distillation towers. In addition, you should be able to explain why it is important to monitor and control distillation tower temperatures and pressures. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Distillation: Control Systems | What are the goals of a distillation system? Simply put, they are to maintain an optimum production rate and to meet specifications that are set for its products.<br>In this interactive, online course, you will examine various factors that must be controlled if a distillation system is to meet its goals, and you will see how control systems provide the control that's needed.<br>During operation, different balances must be maintained and you must understand process temperatures, how they can affect the distillation process, and how they can be controlled. The final component is product composition; you will discover how the compositions of a distillation system's products are controlled. | 0.5 | Intermediate |
| Distillation: Operating Problems | How good are you at troubleshooting problems with distillation systems? This interactive online course is designed to familiarize participants with some of the problems that can occur during the operation of distillation systems. After completing this course, participants should be able to describe problems that can occur when the feed rate to a distillation column is incorrect, problems that can occur when the amount of reflux going back to the column is incorrect, and problems that can occur when the reboiler in a distillation system is operated improperly. | 0.5 | Intermediate |
| Distillation: System Startup and Shutdown | Getting the desired products from any distillation system depends on being able to operate the system properly. This interactive online course will teach you the steps involved in preparing and starting up a distillation system. You will also learn the procedures for a short-term shutdown, long-term shutdown, and emergency shutdown of a continuous vacuum distillation system. | 0.5 | Intermediate |
| Distillation: Towers, Reboilers, and Condensers | How familiar are you with the process of distillation or the components of distillation towers? This interactive online course is designed to familiarize participants with the basic principles of operation of distillation towers, reboilers, and condensers. After completing the course, participants should be able to describe the difference between a binary tower and a multidraw tower and explain how a multidraw tower operates. They should also be able to explain why the physical dimensions of a tower can vary, and they should be able to explain why vacuum distillation and azeotropic distillation are used. In addition, participants should be able to explain how various types of reboilers and condensers are used in distillation systems. | 0.5 | Intermediate |
| Distributed Control Systems Introduction | Distributed control systems(DCS) are used in a variety of industries for numerous applications. Whether you are working with pharmaceuticals, food and beverage, or mining operations, this course provides a brief overview of the different components and variations of typical distributed control systems. This information can be applied to almost anyone's particular field where these systems are being used. | 1 | Intermediate |
| Distribution | The purpose of this course is to teach transmission and distribution (T&D) personnel to recognize the basic elements in a distribution system and to understand, in general, how each element works. The course also introduces basic protective devices and the process of sectionalizing. At the conclusion of this course, participants should know how to recognize transformers, voltage regulators, and capacitors. They should also have a basic understanding of how these devices work. Participants should also be able to identify basic protective devices used on distribution systems to protect the system and its components from damage and its customers from outages. And participants should have a basic understanding of how distribution systems are laid out. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Distribution Line Repair - Gloves | The purpose of this course is to teach the principles involved in working on energized lines using insulated gloves. These principles are illustrated by a demonstration of replacing dead-end crossarms with the lines energized. Method, communication, concentration, and safety are emphasized throughout the course. At the conclusion of this course, participants should be able to demonstrate how to work safely on energized lines using insulated gloves. They should be able to demonstrate how to prepare for a job that will be done using gloves, perform the work safely, and return the job site to a normal condition. They should also understand the steps required to perform the specific job demonstrated. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Distribution Line Repair - Hot Sticks | The purpose of this course is to teach the principles involved in working on energized lines using hot sticks. The principles are illustrated by a demonstration of replacement of dead-end crossarms with the lines energized. The same job is used as with gloves in order to show more clearly how using hot sticks differs from using gloves. Method, communication, concentration, and safety are emphasized throughout the course. At the conclusion of this course, participants should be able to demonstrate how to work safely on energized lines using hot sticks. They should be able to demonstrate how to prepare for a job that will be done using hot sticks, perform the work safely, and return the job site to a normal condition. They should also understand the steps required to perform the specific job demonstrated. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Distribution Line Safety | The Distribution Line Safety course is designed primarily to introduce participants to principles and techniques of equipotential grounding. Although the course is intended as an introduction to equipotential grounding, the procedures and concepts presented assume a familiarity with basic electrical theory, distribution systems, grounding theory and application, and basic distribution line work methods and procedures. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to explain the purpose of grounding an overhead line during maintenance work and describe ways in which an isolated or de-energized line can become energized. Participants should also be able to define the term zone of equipotential and explain how equipotential grounding operates to safeguard linemen in the event of a ground fault condition. Finally, participants should be able to describe or demonstrate how grounding equipment can be used to set up a zone of equipotential. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Diversity in the Workplace | Diversity is acknowledging, accepting, and respecting differences among people. These differences can include age, class, race, and gender. Companies can increase their creativity and openness to different ideas by building and encouraging a diverse workforce. This course covers the definition and benefits of diversity, the challenges in a diverse workplace, and how employees can be proactive and positive on a daily basis to promote the differences between workers. | 0.25 | Intermediate |
| Drinking Water Quality - Monitoring & Security | It's understood that drinking water should be suitable for human consumption and for all usual domestic purposes. So, what is suitable drinking water? Ideally, drinking water should not contain any microorganisms known to be pathogenic or capable of causing diseases. It should be free from chemical contamination, and it should have the right physical properties.<br>In this interactive, online course, we will discuss key information regarding drinking water monitoring and security required to ensure the health, safety, and welfare of the general population being served by water supply facilities. We will discuss the minimum parameters recommended for monitoring drinking water, and the surveillance process and products used for monitoring water quality. We will also discuss the types of threats to facilities, and types of physical security elements that may be put into place to help protect these facilities. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Drinking Water Quality - Water Treatment Technology | Safe drinking water supplies are crucial to the health, safety, and welfare of society. In this interactive, online course, we will discuss key information regarding water treatment technology of drinking water, including characteristics and capabilities of water treatment processes, source water quality, distribution system considerations, and residuals management. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information critical to the successful operation of drinking water related facilities. This course addresses critical factors that affect health, safety and welfare of the population being served by the water treatment system. | 1 | Fundamental |
| Dryers | Many raw materials and finished products in chemical plants are dried at some stage of processing. This training module will cover the basic principles of drying and how drying is accomplished in different kinds of dryers commonly used in chemical plants. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Drying Operations | The purpose of this course is to provide participants with a basic understanding of the operation of drum, paddle-type, and freeze-drying operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Ductile Iron Pipe | Ductile iron pipe is used for many applications, primarily for potable water lines and sanitary sewage pumping stations, but also for drainage systems. The qualities of ductile iron make it superior to other available products. Along with its predecessor, gray cast iron, it has a very long history of use, particularly compared to many other available products. This 2-hour interactive on-line course discusses the characteristics of ductile iron pipe, the advantages of this type of pipe and the design criteria for proper selection of pressure class. It also briefly discusses joint types available and their applications and the old system of classification for ductile iron (such as Class 52). The material is taken from the Ductile Iron Pipe Research Association. There will be a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Dust Control | Dust control is an important part of coal handling operations. This course looks at where coal dust is produced, how it can spread, and how it can be kept from spreading. Specific attention is directed to equipment and techniques that are commonly used to control dust in coal handling systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Dust Control Equipment, Part 1 | Dust from coal handling operations must be controlled to protect personal health, equipment, and the environment. There are many different types of equipment used to control coal dust, and operating it may be part of a coal yard worker's job. Dust control equipment is classified into two main groups: equipment used to control dust inside buildings and equipment used to control dust outside in the coal yard. This course focuses on the equipment used in the coal yard. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Dust Control Equipment, Part 2 | Dust from coal handling operations must be controlled to protect personal health, equipment, and the environment. There are many different types of equipment used to control coal dust, and operating it may be part of a coal yard worker's job. Dust control equipment is classified into two main groups: equipment used to control dust inside buildings and equipment used to control dust outside in the coal yard. This course focuses on the equipment used in the coal yard. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Effective Delegation | LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them. | 3 | Intermediate |
| Effective Delegation: 01-What to Delegate | Learn and apply the delegation process to determine which tasks to delegate to team members (and to whom to assign each task). | 1 | Intermediate |
| Effective Delegation: 02-Issues in Delegating | See and practice the issues that arise in delegation discussions and how to effective handle them. | 1 | Intermediate |
| Effective Delegation: 03-Your Path to Delegating | Learn and apply the five-step process for delegating tasks to members of your team. | 1 | Intermediate |
| Effective Delegation: 04-Mastering Delegating | Practice Delegating in a full scenario situation. | 1 | Intermediate |
| Effective Delegation: 05-Delegating Health Check | Test your ability to apply Delegating concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Effective Discipline: 01-Taking Disciplinary Action | See and rate examples of disciplinary action and understand the importance of designing messages for the team member. | 1 | Intermediate |
| Effective Discipline: 02-The Disciplinary Process and Documentation | Learn the standard procedure for disciplining team members and practice focusing on team member behaviors in documentation. | 1 | Intermediate |
| Effective Discipline: 03-Responding to Team Member Reactions | Since team members often react negatively to discipline, practice how you will respond in these situations. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Effective Discipline: 04-Your Path to Effective Discipline | Learn and apply the five-step process for effectively disciplining a team member. | 1 | Intermediate |
| Effective Discipline: 05-Mastering Effective Discipline | Practice Effective Discipline in a full scenario situation. | 1 | Intermediate |
| Effective Discipline: 06-Effective Discipline Health Check | Test your ability to apply Effective Discipline concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Effective Presentation Skills | In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation. | 1 | Intermediate |
| Efficient Boiler Operation | This course explains some of the fundamental aspects of turbine efficiency. After completing this course, participants should be able to identify energy flows that enter and exit a typical turbine generator set, and explain how to determine the efficiency of a turbine. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Efficient Condenser Operation | This course is designed to explain how three general categories of problems can affect condenser vacuum, efficiency, and unit heat rate. After completing this course, participants should be able to describe how tube fouling and blockages, air leakage into the condenser, and circulating water flow and temperature problems affect efficiency and unit heat rate. They should also be able to identify ways to recognize and respond to these problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Efficient Operation of Oil and Gas Fired Boilers | This course describes how changes in parameters can affect boiler efficiency and heat rate. After completing this course, participants should be able to explain how changes in key boiler parameters can affect boiler efficiency and heat rate, how some of the possible causes of those changes can be identified, and how problems that can cause parameters to change can be recognized during a boiler walkdown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Efficient Power Plant Operation | This course is designed to explain why unit heat rate is higher than normal during certain operating conditions and describe what can be done to prevent additional efficiency losses from occurring during these conditions. After completing this course, participants should be able to explain how careful planning and following plant procedures can reduce efficiency losses during unit startups and shutdowns. They should also be able to explain why parameters should be kept at their setpoints during reduced power operation, and how changes in weather conditions affect efficiency and heat rate. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Efficient Pump Operation | This course is designed to teach participants how pumps in generating units can be operated efficiently. After completing this course, participants should be familiar with pump operating characteristics such as capacity, head, power, efficiency, and minimum net positive suction head. They should understand how these characteristics can be plotted and read on pump curves, and how pump curves can be used. In addition, they should be able to describe the effects of multiple pump operation and low flow on pump efficiency. | 1 | Intermediate |
| EHS Regulatory Overview | Violating Environmental, Health and Safety regulations can result in fines and even the closure of your business. This interactive online course will teach you the major regulations for general industry as it pertains to Environmental, Health and Safety. You will learn how to determine which regulations are relevant to your companies and/or industry. You will also learn what your organization can do to maintain regulatory compliance with EHS regulations. | 1 | Intermediate |
| Electric Motor Basics | Electric motors are key components of many consumer products and industrial processes, from kitchen mixers to pump motors generating thousands of horsepower. This course describes the operation and common uses for AC motors, DC motors, servomotors, and linear motors. | 0.5 | Intermediate |
| Electrical 1: Cable Tray | Cable Tray is a course designed to familiarize participants with cable tray components and installation techniques. After completing this course, participants should be able to identify the types of sections and the types of fittings used in cable tray assemblies, explain how cable tray is supported, and explain how cable tray sections are spliced. They should also be able to size cable tray for specific numbers and types of conductors. | 2 | Intermediate |
| Electrical 1: Commercial and Industrial Wiring | This course is designed to familiarize participants with wiring devices and wiring techniques used at commercial and industrial sites. After completing this course, participants should be able to identify various types of switches, enclosures, control devices, and receptacles. They should also be able to describe basic techniques for planning and installing branch circuits, mounting boxes, and working with conductors. | 2 | Intermediate |
| Electrical 1: Electrical Diagrams | This course is designed to familiarize participants with various types of electrical diagrams. After completing this course, participants should be able to explain why symbols are used on electrical diagrams, and how to obtain information from a title block and an equipment location index. They should also be able to explain how to use each of the following types of diagrams: block, single line, schematic, wiring, connection, interconnection, and raceway. | 2 | Intermediate |
| Electrical 1: Electrical Safety | The purpose of this course is to give participants a general understanding of basic principles of electricity and electrical safety. At the conclusion of this course, participants will have a basic understanding of various aspects of working safely around electrical equipment. | 2 | Intermediate |
| Electrical 2: Boxes and Fittings | Boxes and Fittings is a course designed to familiarize participants with various types of boxes and fittings used in electrical installations. After completing this course, participants should be able to identify different types of boxes and explain how to properly size outlet boxes, pull boxes, and junction boxes. They should also be able to identify different types of couplings, locknuts, and bushings, and explain what seal-off fittings are and how they are installed. In addition, they should be able to describe the three classes of hazardous locations that are identified in the National Electrical Code® (NEC®) and describe requirements for safely installing boxes and fittings in hazardous locations. | 2 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical 2: Circuit Breakers and Fuses | Circuit Breakers and Fuses is a course designed to familiarize participants with the use of overcurrent protective devices in electrical installations. After completing this course, participants should be able to describe hazards associated with faults and overloads, describe the operation and common types of circuit breakers and fuses, and describe basic procedures for troubleshooting problems with circuit breakers and fuses. | 2 | Intermediate |
| Electrical 2: Electrical Lighting | Electric Lighting is a course designed to familiarize participants with various types of lamps and lighting fixtures and how install them. After completing this course, participants should be able to explain how the human eye sees and describe the characteristics of light. They should also be able to compare and contrast various types of lamps, and they should be able to explain how to install various types of light fixtures. | 2 | Intermediate |
| Electrical 2: Grounding | Grounding is a course designed to familiarize participants with both system grounding and equipment grounding. After completing this course, participants should be able to describe different types of grounding, describe National Electrical Code® (NEC®) requirements associated with system grounding, and describe how to size and install grounding electrode conductors. They should also be able to describe NEC requirements associated with equipment grounding, describe how to size equipment grounding conductors and bonding jumpers, and explain how to make sure that a grounding system is effective. | 2 | Intermediate |
| Electrical 2: Installation of Electrical Services | Installation of Electric Services is a course designed to familiarize participants with considerations associated with installing a commercial or industrial electric service. After completing this course, participants should be able to describe various types of electric services for commercial and industrial installations, and they should be able to identify and describe the main components of those services. They should also be able to explain how to select and install equipment for a single-phase service and a three-phase service. | 2 | Intermediate |
| Electrical 2: Motors: Theory and Application | This course is designed to familiarize participants with the operation and use of various types of electric motors. After completing this course, participants should be able to describe the basic construction and operation of direct current (DC) motors, alternating current (AC) induction motors, and AC synchronous motors. They should also be able to explain how motor speed can be controlled and how motors and motor circuits can be protected from damage, and they should be able to interpret the information on a motor nameplate. | 2 | Intermediate |
| Electrical Drawings and Schematics | This course discusses recognizing electronic symbols, integrated circuits, and logic symbols. It also covers electronic schematics and the difference between logic and digital diagrams. | 0.25 | Intermediate |
| Electrical Energy and Power | The forms of energy commonly used to produce electrical energy are known as primary energy sources, which include coal, oil, natural gas, and nuclear energy. These sources are refined, burned, or processed in order to create the electrical energy used to power homes and appliances. In this course, participants will learn to define electrical energy and power as well as list the different units used to measure electrical power. | 1 | Intermediate |
| Electrical Equipment: AC and DC Motors | This course is designed to familiarize participants with basic concepts associated with the operation of electric motors. After completing this course, participants should be able to explain the basic principles of motor operation and describe the basic operation of a simple alternating current (AC) motor and a simple direct current (DC) motor. They should also be able to identify the parts of a typical AC motor and a typical DC motor, and describe the function of each part. | 2 | Intermediate |
| Electrical Equipment: Electrical Production and Distribution | This course is designed to familiarize participants with basic concepts associated with the production and distribution of electric power for use by process systems. After completing this course, participants should be able to explain, in general terms, how off-site power comes into a plant and how a plant can generate power on site for its own use. They should also be able to identify and explain the functions of the major components in an electrical distribution system. In addition, participants should be able to describe general hazards associated with these systems and explain how the possible effects of the hazards can be minimized. | 2 | Intermediate |
| Electrical Equipment: Motor Controllers and Operation | This course is designed to familiarize participants with basic concepts associated with what motor controllers do and how they do it. Typical steps for starting up, checking, and shutting down motors are also covered. After completing this course, participants should be able to explain how motor controllers control and protect motors. They should also be able to describe how to start up a motor, perform operating checks on a motor, and shut down a motor. | 2 | Intermediate |
| Electrical Fire Alarm Systems | This course presents key information regarding electric fire alarm systems. Fire alarm systems are of critical importance for several types of facilities, and are mandated for specific facilities by regulatory and government agencies. We will cover system fundamentals, and the various types of systems available and in use today - specifically, voice and alarm communications, automatic alarm signals, controls and signal initiation, transmission and notification. | 1 | Fundamental |
| Electrical Installations 1: Electrical Laws, Components and Circuits | The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter"s Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time. | 1 | Fundamental |
| Electrical Maintenance: Battery Systems | This course is designed to introduce participants to industrial battery systems, battery cells, and how to inspect and test batteries. After completing this course, participants should know the characteristics and basic operation of a typical battery system and its components. They should also understand how to inspect and perform basic tests on industrial batteries. | 2 | Intermediate |
| Electrical Maintenance: Fasteners | This course is designed to familiarize participants with various types of fasteners used in electrical work. After completing this course, participants should be able to describe common types of threaded and non-threaded fasteners and identify applications for which each type might be used. They should also be able to describe basic procedures for installing fasteners. | 2 | Intermediate |
| Electrical Maintenance: Introduction to the NEC | This course is designed to familiarize participants with the organization and layout of the National Electrical Code® (NEC®). After completing this course, participants should be able to use the NEC to locate specific types of information. | 2 | Intermediate |
| Electrical Maintenance: Relays, Part 1 | The purpose of this unit is to teach the basic principles of protective relays and to introduce directional and non-directional relays. The unit begins with the basic theory of protective relays, commonly used types of relays, and a brief explanation of how these relays are used. Additional details and examples of applications are provided for directional and non-directional relays. At the conclusion of this unit, the trainees should have a basic understanding of how protective relays work. They should be able to explain the need for protective relays and to list commonly used types of relays and their functions. They should also be able to explain how directional and non-directional relays work and give examples of situations in which they are used. | 1 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Electrical Maintenance: Relays, Part 2 | The purpose of this unit is to continue the development begun in Relays, Part 1 by introducing differential and pilot relays and discussing routine relay maintenance. The relays examined are differential relays and pilot relays used for differential comparison, phase comparison, and transfer tripping. The unit demonstrates how to inspect and maintain relays and how to put them in and out of service. At the conclusion of this unit, trainees should be able to explain how differential and pilot relays work and give examples of situations where they are used. They should also be able to describe how to approach routine inspection and maintenance and how to put a relay in or out of service. | 1 | Intermediate |
| Electrical Maintenance: Troubleshooting Electrical Circuits | This course is designed to familiarize participants with the use of basic troubleshooting procedures to troubleshoot problems in electrical circuits. After completing this course, participants should be able to identify and describe the main steps of a basic troubleshooting procedure and use the procedure to troubleshoot problems in electrical equipment and electrical systems. | 2 | Intermediate |
| Electrical Meters and Measurements | A digital multimeter is a single instrument that is capable of measuring voltage, current and resistance. A digital multimeter is an indispensable general-purpose tool for troubleshooting electrical problems. There are other dedicated test instruments, which in various ways, go beyond the capabilities of the multimeter. This module describes the typical features and usage of digital multimeters, as well as those of voltage detectors, clamp ammeters, megohmeters, digital thermometers and oscilloscopes. | 0.5 | Intermediate |
| Electrical Soldering | Soldering is a technique for joining two pieces of metal together by melting and flowing a filler metal into the area where the pieces are to be joined. The filler metal, or solder, is an alloy that melts at a lower temperature than the pieces being joined. Soldering is commonly used in electronics, plumbing, certain types of metalwork, and jewelry. This module will focus primarily on soldering as applied to electronics, including the composition of different solders, the role of flux, joint preparation and proper soldering technique. | 0.5 | Intermediate |
| Electrical Switches | An electrical switch is any device used to interrupt the flow of electrons in a circuit. This course begins with an overview of switches, then describes several types of common switches, and ends with common switch contact designs. | 0.25 | Intermediate |
| Electrical Systems | This course explains the basic components of an electrical distribution system, its function, and typical monitoring and protective equipment in the system. | 1 | Intermediate |
| Electrical Systems and Equipment, Part 1 | This course focuses on three of the major components in an electrical system: unit transformers, switchyards, and substations. This course also describes how these components fit into an electrical system, how they operate, and how they are checked to make sure they continue to operate properly. | 1 | Intermediate |
| Electrical Systems and Equipment, Part 2 | Electrical power systems deliver electricity to customers and to the plant. This course teaches how electrical power systems deliver electricity to customers and how electrical power systems adjust voltage and current for more economical power delivery. It also shows how electrical power systems deliver electricity to plant equipment and how the station service system can help ensure a continuous flow of power to the plant in the event of certain equipment malfunctions. Finally, it describes the essential service system, which helps operators maintain control during an emergency. | 1 | Intermediate |
| Electrical Wiring and Connections | One of the greatest benefits of electricity is its ability to transfer energy from where it is generated to where it is needed. Electrical wires, cables and cords are used to accomplish the transfer. Electrical wiring consists of a conductive material such as copper surrounded by an insulating material such as thermoplastic. The primary dangers associated with the distribution of electric power are electrocution and the generation of heat. These hazards must be considered when laying out and connecting all types of wiring. | 0.5 | Intermediate |
| Electrical Wiring: Cables and Conductors | This course is designed to familiarize participants with the basic construction and installation of electrical cables and conductors. After completing this course, participants should be able to describe the basic construction of cables and conductors, and describe how conductors are classified and rated. They should also be able to describe factors that affect the installation of a conductor for a specific application, and describe how to make splices and terminations. | 2 | Intermediate |
| Electrical Wiring: Conduit Installation | This course is designed to familiarize participants with the basic concepts of conduit and conduit fittings, and typical methods of cutting, bending, and installing conduit. After completing this course, participants should be able to describe the basic types of metallic and nonmetallic conduit, describe common types of conduit fittings, and describe procedures for cutting, bending, and installing metallic and nonmetallic conduit. | 2 | Intermediate |
| Electrical Wiring: Splices and Terminations | This course is designed to familiarize participants with common types of hardware and accessories used in making electrical splices and terminations, and how to prepare for and make various types of connections. After completing this course, participants should be able to identify basic types of terminals, connectors, tools, and materials used in making splices and terminations, and describe the applications for which they are suitable. They should also be able to describe how to make some common types of electrical splices and conductor terminations. | 2 | Intermediate |
| Electromagnetic Induction | Voltage applied to a conductor creates a magnetic field around that conductor. It is possible to reverse this process and for a magnetic field to generate a voltage in a conductor. For this to occur, there must be some relative motion between the conductor and the magnetic field. Electromagnetic induction takes place whenever a conductor moves through a magnetic field or when a magnetic field moves across a conductor. The voltage inducted in the conductor is called electromotive force. If the conductor is connected in a complete circuit, a current will flow. This module covers the definition of electromagnetic induction, voltage generators, the left hand rule, solenoids, relays, and transformers. | 0.25 | Intermediate |
| Electromagnetic Relays | When a fault occurs, current increases and voltage decreases. The increased current causes excessive heating, which depending on where the fault occurs, can result in a fire or an explosion. If the fault is not quickly isolated, it can cause damage that may result in loss of service. Various types of control systems are used to detect and isolate faults with minimum disturbance. A key component of all of these control systems is the protective relay. This course examines the functions and operation of some types of protective relays. | 1 | Intermediate |
| Electronic Circuit Board Repair | Today, almost all electronic devices have components placed on printed circuit boards. These boards are called printed circuit boards, or PCBs, because the conductive paths are printed on through a photographic process. Circuit boards are essential to the day-to-day operation of most electronic products. This course will describe how to identify defective circuit boards, as well as two common methods of troubleshooting. | 1 | Intermediate |
| Email and Messaging Safety | Email is the primary means of attack from cyber-perpetrators. This course provides an overview of cybercrime via email, and how to employ safe email and messaging practices to avoid and help prevent cyber threats, attempts at fraud and identity theft. | 0.25 | Fundamental |
| Email Basics | Almost 145 billion emails are sent every single day. They are easy to send and virtually instantaneous. Emailing has become one of the most common ways for people to communicate with friends and family, as well as co-workers and customers. While email is simple and familiar, there are important rules to follow to ensure that messages are clear, polite, and effective. This course will outline those rules so that every email sent is a professional one. | 0.5 | Intermediate |
| Email Etiquette | Email has long since replaced postal snail mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication. | 2.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Emission Controls | One of the critical concerns of industries that deal with hazardous chemicals is the release or discharge of these substances into the air. This course identifies different types of emissions and their effects on the environment and describes methods that can be used to prevent or control emissions. | 1 | Intermediate |
| Employee Discipline | Hate those awkward moments when you have to 'deal' with inappropriate or ineffective behavior? Make those moments an experience of the past by learning how to appropriately discipline an employee. With proper implementation of the skills taught in this course, you will find that those awkward moments are few and far between resulting in a better experience for everyone, as well as your overall results. | 1 | Intermediate |
| Employee or Independent Contractor: The Risk of Misclassification of Employees | A growing number of workers are trading in the corporate hierarchy for the freedom to be their own boss. These independent contractors can be found in nearly every profession, from lawyers and business consultants to writers and yoga instructors. They set their own schedule and they enjoy a wide variety of work experiences, but they also pay their own taxes and secure their own health insurance. A problem arises, however, when employers misclassify workers who are employees under the law as independent contractors. Depending on the specific terms of the working arrangement with an independent contractor, such as hours worked, reporting structure, payment schedule, et cetera, you may be in violation of some very serious worker classification laws. In this interactive, online course, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors. | 0.5 | Fundamental |
| Energy Conversion Analysis (RV-10839) | Energy conversion devices are an important element of progress of society. Understanding their limitations and efficiencies is vital to our energy-informed and energy-conscious society. The ideal, simple, and basic power cycles of Carnot Cycle, Brayton Cycle, Otto Cycle, and Diesel Cycle, the ideal power cycle components and processes of compression, combustion, and expansion, and the ideal compressible flow components of subsonic nozzle, diffuser, and thrust are presented in this 4-hour online course. In the presented power cycles, power cycle components and processes, and compressible flow analysis, air is used as the working fluid. | 4 | Intermediate |
| Energy From Waste | How can you obtain energy from waste? This interactive, online course will cover potential sources of waste available for energy recovery - hot exhaust gases, cooling water, and heat lost from hot equipment surfaces and heated products. Systems utilized for Energy from Waste technologies will also be reviewed. This information is useful training for design professionals, facility managers, and system maintenance personnel. | 1 | Fundamental |
| Energy Management Exercise, and Safety | Have time set aside, but no energy to use the time well? Learn the skills of managing your energy to find yourself getting more done and feeling better while you do it! Through the effective use of application exercises and a rich multimedia process, this course will take you on a journey of discovery to implement a workable plan to energize your life and get more done. | 0.5 | Intermediate |
| Energy Modeling Outcomes - Design with Confidence | What is energy modeling and how can it help in your next site design? We all know that having the right information earlier produces substantially superior results. Systematic early design energy modeling assists design teams and owners by clarifying the decision space, and bringing relevant information to the discussion. This interactive online course will help you discover the replicable methods to produce better information sooner as well as the incentive programs to look for that will subsidize these best practices. Building energy modeling and distributed generation systems will be covered so you will have all of the tools necessary to push for net zero building designs. | 1 | Intermediate |
| Environmental Awareness | Operators can play an important role in controlling the amounts of impurities that are released to the environment. It is, therefore, important for operators to have an understanding of current environmental regulations and preventive practices. This training module focuses on these regulations and the operator's role in controlling industrial pollution. | 1 | Intermediate |
| Environmental Protection Systems - Air Pollution | This course is designed to familiarize participants with the basic concepts associated with what air pollution is and how it can be controlled. After completing this course, participants should be able to explain what air pollution is, where it can come from, and how it can be monitored. They should also be able to explain how air pollution from industrial facilities can be controlled. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Environmental Protection Systems - Water Pollution | This course explains how water pollution standards are expressed, what the standards are for certain pollutants, and where many pollutants come from. The course also discusses how industrial facilities keep their discharges of potential pollutants below the standards set for them and describes some of the techniques and types of equipment that industry uses to prevent the discharge of pollutants into the environment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Equipment Drive Components: Gear, Belt, and Chain Drives | This course is designed to familiarize participants with basic concepts associated with the operation of gear drives, belt drives, and chain drives. After completing this course, participants should be able to describe the general function of gear drives, belt drives, and chain drives, and explain how each of these equipment drive components operates to transfer power from a driver to a piece of driven equipment. They should also be able to describe operator checks that are commonly performed on gear drives, belt drives, and chain drives. | 2 | Intermediate |
| Equipment Lubrication: Using Lubricants | This course is designed to familiarize participants with some of the methods and devices used to lubricate equipment components such as bearings. After completing this course, participants should be able to describe the use of hand grease guns, pneumatic grease guns, grease cups, and centralized lubricators. They should also be able to describe the basic operation of drip-feed oilers, oil baths, bottle oilers, ring oilers, and circulating oil systems. In addition, participants should be able to describe the use of contact seals, labyrinth seals, and mechanical seals, and to describe how valve packing is lubricated. | 2 | Intermediate |
| Equipment Maintenance and Reliability | Defines equipment maintenance, and discusses its importance and benefits. Also covers some safety and work guidelines related to performing equipment maintenance. | 0.25 | Intermediate |
| Ergonomics Economics | What is ergonomics and how does it benefit you? This interactive online course looks at medical aspects which will help you understand why ergonomic study and a well-designed work environment are not only important, but essential. In addition to general solutions presented, you will review 13 common user-friendly ergonomic guidelines which have been developed from exhaustive studies. Finally, you will examine the economics of ergonomics to learn how well-designed ergonomic products and practices can help produce savings. | 0.5 | Intermediate |
| ESD Precautions | This course covers the principles of electrostatic discharge and the necessary precautions that should be taken to avoid damage to sensitive equipment. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Essential Lighting: The Language, Metrics & Process of Lighting Design | This 3-hour interactive online course provides a basic understanding of lighting, its properties, and the terminology used to define various aspects of lighting. From the ability to accurately describe characteristics of color and intensity of a light source, to understanding how we respond to light, you will come away with insights on how lighting can literally change your world - in ways that can be good or bad.The author provides numerous examples that allow the reader to relate the technical issues to the everyday experience. Everyone knows lighting from their experience of it. Understanding its metrics, how it can be manipulated to help us perform better, use energy more effectively, and improve our moods can be valuable not only to designers, but to anyone interested in their environment.The course also delves into how lighting design decisions are made, and the positive potential effects of good lighting design practice. Some examples of common, everyday lighting problems and solutions are discussed at the end of the course to bring the value of thoughtful lighting design into perspective.Understanding terminology and concepts discussed in this course will be important before advancing to additional lighting design topics.There will be a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Essential Skills of Communicating: 01-Empowering Leadership Communication | Utilize an empowering and dynamic communication process to increase team members motivation and commitment. | 1 | Intermediate |
| Essential Skills of Communicating: 02-Craft Clear and Concise Messages | Construct and express clear and concise messages in both written and spoken communication. | 1 | Intermediate |
| Essential Skills of Communicating: 03-Deliver Messages Designed for the Team Member | Deliver messages that address the interests of the listener. | 1 | Intermediate |
| Essential Skills of Communicating: 04-Listen To Communicate | Use Reflecting, Probing, Supporting, Advising to demonstrate active listening to others. | 1 | Intermediate |
| Essential Skills of Communicating: 05-Manage Nonverbal Behavior | Make verbal and nonverbal communication congruent to reinforce the intent of messages. | 1 | Intermediate |
| Essential Skills of Communicating: 06-Impactful Feedback | Provide the rationale for your feedback, whether to reinforce or improve performance. | 1 | Intermediate |
| Essential Skills of Communicating: 07-Mastering Essential Skills of Communicating | Practice the skills learned in Essential Skills of Communicating in a full scenario situation. | 1 | Intermediate |
| Essential Skills of Leadership: 01-The Work of Leaders | Distinguish between leadership and management tasks and familiarize yourself with the Leadership Achievement Path. | 1 | Intermediate |
| Essential Skills of Leadership: 02-Focus on Behavior | Base discussions about performance and work habits on behavior rather than on personalities and attitudes. | 1 | Intermediate |
| Essential Skills of Leadership: 03-Maintain or Enhance Team Member Self-Esteem | Acknowledge contributions, results and accomplishments to enhance self-esteem. | 1 | Intermediate |

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| Essential Skills of Leadership: 04-Encourage Team Member Participation | Involve team members in goal setting, problem-solving and decision-making. | 1 | Intermediate |
| Essential Skills of Leadership: 05-Lead Effective Meetings | Deploy meeting management skills to meet the goals of the meeting in the available time. | 1 | Intermediate |
| Essential Skills of Leadership: 06-Mastering Essential Skills of Leadership | Practice the skills learned in Essential Skills of Leadership in a full scenario situation. | 1 | Intermediate |
| Essential Skills of Leadership: 07-Essential Skills of Leadership Health Check | Test your ability to apply Essential Skills of Leadership concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Essentials of I-9 Compliance | To many employers, a Form I-9 may appear to be a simple one-page piece of hiring paperwork. However, the one page Form I-9 comes with enough rules and regulations to fill a 69-page how-to manual, the M-274 Handbook for Employers.<br>There are many common mistakes and human errors that can be made while completing and maintaining Form I-9 records. If an employer fails to complete or maintain I-9 documentation correctly, that employer may fall out of compliance and suffer harsh financial penalties. This interactive, online course contains valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce. | 0.5 | Fundamental |
| Essentials of Industrial Wastewater Treatment | High-quality fresh water is an increasingly rare and valuable commodity. The Earth contains a finite supply of water and the small fraction which is useable for drinking and other valuable uses will continue to come under increasing pressure. With a worldwide focus on water quality and management, the fate of wastewater generated by industry is more important than ever. Treating water for discharge or reuse, and minimizing the amount of water to be treated, are important concepts for the engineering, science or other professional to understand.This interactive online course will focus on considerations and technologies for treating industrial wastewater. Treatment of municipal and domestic wastewater, such as at publicly owned treatment works (POTWs), will be discussed briefly. | 1 | Fundamental |
| Essentials of Lean Manufacturing | What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to think Lean and apply Lean methods and tools to improve the quality and efficiency of your company. | 1 | Intermediate |
| Essentials of Six Sigma | Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, it's management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently. | 0.75 | Intermediate |
| Ethics for Professionals | What are ethical guidelines and how do they apply to you in your professional field? Every day you face decisions that have ethical implications. While the welfare and safety of the public are everyone's primary concerns, time, personal and resource pressures can often challenge these commitments. Taking a pro-active approach to workplace ethics is the best course of action to mitigate this risk, avoid legal problems, and build a working atmosphere of integrity, trust and purpose. In this interactive online course, we will explore how to develop a strong and sustainable set of workplace ethics and guidelines designed to mitigate ethics creep, avoid legal implications, and build a solid, ethical foundation for a healthy workplace culture. We will explore common ethical topics and challenges and will detail the best practices when faced with thought provoking situations. We will also present the differences between a Code of Conduct and a Code of Ethics and how they can affect each professional differently. | 1 | Fundamental |
| Ethylene Oxide Safety | This course will introduce and describe the characteristics and uses of ethylene oxide (EtO). It will also discuss the health hazards of ethylene oxide and how to protect yourself with the use of respirators and other personal protective equipment. OSHA regulations on ethylene oxide will be reviewed and will include information on exposure limits and monitoring; compliance; medical surveillance; and communication. Recommendations on engineering controls, work practices, and emergency response will be provided. | 1 | Intermediate |
| Evaporation Unit Operations | The purpose of this course is to introduce participants to the principles of evaporation and the purpose of evaporation in process systems. The focus of the course is on the advantages and applications of various types of evaporators used in industry and on standard operator duties. This course consists of a streaming video course. It may also contain links to various Internet sites, and course reference material in a PDF format. | 1 | Intermediate |
| Everyone is a Leader | For a time, the Disney company got some of its best ideas from the janitor. Leadership can be seen in any role and from any person. Using application exercises and rich multimedia, learn how to identify leadership potential and how to use the influence of unofficial leaders to everyones benefit. | 0.5 | Intermediate |
| Excel Basics for Mac | Get Started with Microsoft Excel - The Most Useful Software Ever Created<br>Excel can do almost anything  crunch numbers, create lists, store data, edit budgets, and more. In this basics course well show you how to get started with Excel on a Mac, including using the most popular features.<br>Whether you're a first-time Excel user, or if you just want to re-learn the fundamentals, this course is for you! | 2.25 | Fundamental |

# Industrial Complete (Continued)

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| Excel for Project Management | Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information.<br>A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan. | 1 | Fundamental |
| Excel: Creating Dashboards | Get More From Excel - Learn To Use Forms, Lookup Functions, Charts, PivotTables, and Slicers To Turn Data Into Answers. Crunching numbers is what Microsoft Excel does best - but how do you use those numbers to get the answers you need? This course will show you how to use advanced Excel features to turn massive amounts of data into visual, customizable dashboards. The ability to easily query and display information from your Excel data is a helpful tool for decision making, and this course will demonstrate five advanced Excel features (Forms, Lookup Functions, Charts, PivotTables, and Slicers) which will do just that. | 3 | Fundamental |
| Excel: Data Analysis With Pivot Tables | Get More From Your Excel With The Power Of PivotTables. Pivot Tables are the perfect tool to analyze large amounts of data in Excel. Being able to summarize, visualize, and tabulate your data makes PivotTables an important skill for anyone who uses Excel to store and report on data, and in this course Microsoft trainer Kathy Jones will show you how to effectively use the PivotTable tools in Excel 2013 and 2016. | 2.5 | Advanced |
| Excel: Introduction to PowerPivot | Learn How To Transform Excel Into Your Big Data Power Tool. Power Pivot is an Excel add-in you can use to perform powerful data analysis and create sophisticated data models. With Power Pivot, you can mash up large volumes of data from various sources, perform information analysis rapidly, and share insights easily. In this course well show you everything you need to know in order to install and start using Power Pivot in Excel. | 1.25 | Fundamental |
| Excel: Power Functions | Learn to Use the 10 Excel Functions Recommended by the Experts. Excel provides over 400 functions to perform a variety of calculations within your data. With this many functions, its guaranteed you're missing out on some powerhouse formulas that can make your day easier. This course explores 10 functions the experts recommend to expedite your data analysis. | 1 | Fundamental |
| Existing Building Commissioning: Implementing Retrocommissioning on Your Project | What is retrocommissioning and how will it benefit your building? Learn about the retrocommissioning process and how to implement this process on an existing building, with lessons learned from a commissioning professional and Professional Engineers. This interactive online course will give a quick overview of commissioning and the benefits of commissioning for existing buildings, followed by how to implement retrocommissioning by walking the participant through each step of the process. Benefits of and difficulties with implementing the commissioning process on existing projects are evaluated. Finally, a sample case study is given which discusses lessons learned on the retrocommissioning implementation process. | 1 | Intermediate |
| Exit Routes, Emergency Action Plans & Fire Prevention Plans | A safe means of escape is crucial when it's necessary to quickly evacuate a building. This course will provide examples of some previous egress tragedies that well help you to understand critical means of egress requirements. You will learn how to develop an emergency action plan and a fire prevention plan that may be implemented in your facility so you can be ready if disaster strikes. | 1 | Fundamental |
| Explosive and Flammable Chemicals | A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented. | 1 | Intermediate |
| Eye and Face Protection | Workers are subject to blindness, contusions and sometimes fatal injuries, due to eye and face hazards. 90% of all workplace eye injuries can be avoided by using the proper safety eyewear. This interactive online course will teach you how to select the proper personal protective equipment for eye safety. Additionally you will learn OSHA regulations for eye and face protection. You will also learn how to properly maintain your eye and face protective equipment. | 1 | Intermediate |
| Facilitating Meetings and Groups | LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals. | 7 | Intermediate |
| Facility Asset Management | Facility asset management is the process of taking care of things of value in and around a facility; equipment, buildings, systems, walls, roofs, sidewalks, parking lots, and so on. In this course you will learn about the components necessary to implement an effective asset management program. You will also learn about the relationship of asset cost to maintain and future capital expenditures, purchasing the appropriate quality assets and parts, documenting asset history and performance, critical asset analysis, failure mode and effect analysis (FMEA), auditing of the maintenance process, life cycle analysis, forecasting and budgets, and performance measures. | 1 | Fundamental |
| Facility Maintenance Management | Facility maintenance management is the logistical component of taking care of a facility, and involves managing the day to day maintenance requirements of a facility. In this course, you will learn about work request management, work planning and work scheduling, computerized maintenance management systems (CMMS), and communication methods and techniques associated with the maintenance function. You will also learn about how to address staffing concerns, how to address travel and transportation of your maintenance technicians, and backlog management. Also discussed are how to properly lead a facility maintenance team, and how to develop a long term facility maintenance management plan. | 1 | Fundamental |
| Facility Management Essentials | In this course, you will learn about the key principles you need to understand to be able to be a successful facility manager. You will learn about leadership and management skills needed in facility management, in addition to topics around business finance, staffing, work flow/asset tracking, work planning/scheduling and maintenance, management and craft training, performance measures, and customer/client communication and coordination. | 1 | Fundamental |
| False Alarm Prevention | Across the country, state laws are evolving on a constant basis to address the problem of false alarm signals. The daily operation of alarm companies across the United States is critical and essential to the success of reducing the number of false alarm dispatches. The problem of false dispatches will not be reduced on any significant level without a careful and constant review of these ordinances, as well as the conscientious application of aggressive procedures in designing, installing and servicing alarm systems, and training alarm system end users. This 2-hour online course provides solutions for the prevention of false alarms based on statistical information, as well as the application of technical and operational procedures. This course provides a foundation for alarm contractors to help reduce false alarms by educating their customers about proper alarm operation, the role of law enforcement, and the technical responsibility of the alarm contractor. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Fundamental |

# Industrial Complete (Continued)

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| Fans | Many processes and systems in an industrial facility require the movement of air or other gases. Air movement is important in applications such as heating and cooling, pollution control, combustion, and ventilation. One of the most common ways to move air and other gases in a controlled manner is with fans. This course identifies the major components of fans and describes the operation of various types of fans. The operator's role in keeping fans working properly is also examined. | 1 | Intermediate |
| Fastener Basics | Devices that are used to connect two or more objects together mechanically, are called fasteners. There are countless types of mechanical fasteners, and each one is specifically designed for a particular application. This module will identify and describe screw types, identify and describe bolt types, and describe how to use a torque wrench. | 0.25 | Intermediate |
| Feedwater Heater Efficiency | This course is designed to teach participants how to recognize whether feedwater heaters are operating properly. After completing this course, participants should understand how a feedwater heater works and the role it plays in a generating unit. They should also know how to monitor the operation of a feedwater heater to maintain maximum efficiency and how to recognize and identify feedwater heater problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Filter Circuits | In this course, participants will learn to describe the purpose of a filter circuit as well as how to identify the major components of a filter circuit. This course also covers some of the common types of filter circuits and how filter circuits are used on power conditioning systems. | 1 | Intermediate |
| Filtration and Screening Unit Operations | This course focuses on the separation of mixtures by means of filtration and screening. The operation of devices used to accomplish filtration and screening are covered along with the operator's role and screening unit operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Financial Management 1: Negotiating Contracts | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end.This is the first chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Financial Management 2 & 3: Pricing for Profits, Generating Cash and Getting Paid | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly.<br>This is the second and third chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Financial Management 4: Accounting & Cash | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Financial Management 5: Strategic Planning & Budgeting | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Financial Management 6 & 7: Financial Controls, Monitoring & Project Budgeting | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs.<br>This is the sixth and seventh chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Financial Management 8: Controlling Labor Costs | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Financial Management 9: Purchasing | Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Fire Alarm Essentials | In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations. | 2 | Intermediate |
| Fire and Smoke Dampers Simplified | Fire and smoke dampers are essential components of fire and life safety systems of a building. Their operation prevents the spread of fire and smoke and allows building occupants to safely exit a building during a fire. Fire and smoke dampers are also vital to the integrity of fire and smoke rated building assemblies. Improper specifications, installation, actuation or simply the lack of fire and smoke dampers can result in damage to a building or worse, loss of human life. This interactive online course will discuss fire walls, fire barriers, smoke barriers, fire partitions and horizontal assemblies. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
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| Fire Essentials and Fire Science | According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for $329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard. This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire. | 1 | Fundamental |
| Fire Water Systems – Storage, Pumping & Distribution | Having a readily available water supply for firefighting procedures is essential for protecting the health, safety, and welfare of the general public. This means water must be available and accessible in any weather condition. This interactive online course will teach you about water storage systems and design considerations for water sources. You will also learn about water pumping and distribution systems. | 2 | Fundamental |
| Fire! Designing Means of Escape | Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features-adequate means of egress-in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code.There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Advanced |
| First Responder Operations Level Refresher | This course is designed to be a refresher for the Operations Level Responder to Hazardous Materials Incidents, meeting the requirements of NFPA 472 and 29 CFR 1910.120(q). The course is divided into four modules. Each module should take approximately two hours to complete. The first module covers how to survey a hazmat spill or incident; how to collect hazard and response information with MSDSs, labels, and markings; and how to identify the various transport containers and storage tanks used for hazardous materials. The second module covers the chemical and physical properties of materials and their impact on storage and transport containers; response objectives, including how to assess the risk to a responder for each hazard class; and how to determine the suitability of SCBA and personal protective equipment. The third module covers the principles of site management, how to establish and enforce control zones, and tactics for emergency decontamination. It will discuss common types of releases and how to deal with them, and how to conduct defensive operations such as damming and diking and air monitoring. The fourth module covers incident management systems and the first responder's role in a response plan. It will also cover the potential for terrorist attacks, typical agents used in a terrorist event, and the appropriate response tactics. | 8 | Intermediate |
| Flaring, Venting & Purging - OTFVP | Industrial process operations produce many different types of useful products. In many cases, however, these operations also produce waste materials that must either be recovered for reuse or safely discarded. Although waste materials may be solids, liquids, or gases, this course focuses on waste gases. Specific attention is directed to how waste gases are removed from process systems and safely disposed of. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Flow, Level, and Pressure Sensors | Flow measurement devices, or flow sensors, measure the volume of a liquid or gas that passes through a container in a given amount of time. This course discusses the common flow, level, and pressure sensor designs as well as defines common industry terms such as turndown ratio, psi, and atmospheric pressure. | 0.5 | Intermediate |
| Fluid Catalytic Cracking Operations | A typical petroleum refinery includes many different units that are associated with a variety of processes. One of the important units in a refinery is a fluid catalytic cracking unit, or cat cracker. This course describes the basics of fluid catalytic cracking operations, with emphasis on the equipment that is used, the process variables that are involved, and operator responsibilities. | 1 | Intermediate |
| Fluid Flow Measurement, Part 1 | This course covers fundamental information pertaining to the way in which differential pressure measurements can be used to determine fluid flow. Most plants contain miles of piping that provide for the efficient transportation of fluid from one location to another. In some cases, the flow of fluid through a pipe must be measured in order to ensure that equipment is lubricated or that a certain mass or volume of fluid is present at a given time and place. There are several methods that can be used to measure the rate at which a fluid flows through a pipe. One commonly used method is to measure fluid flow in terms of differential pressure, which is the difference between two related pressures in a system of flowing fluid. This course covers fundamental information pertaining to the way in which differential pressure measurements can be used to determine fluid flow. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fluid Flow Measurement, Part 2 | The flow of fluids is an important aspect of many industrial processes. Fluid flow through industrial systems is often measured by flow meters. Instrument technicians are generally responsible for installing, calibrating, and repairing the flow meters in their facilities. In order to perform these tasks efficiently and effectively, instrument technicians must be able to identify various types of flow meters, and they must understand how the meters measure fluid flow. This course focuses on the following types of flow meters: oval gear flow meters, lobed impeller flow meters, nutating disc flow meters, rotameters, cylinder and piston flow meters, weirs, target meters, turbine meters, vortexshedding meters, magmeters, and ultrasonic meters. The course also includes a discussion of how integrators can be used in measuring the total flow of a fluid. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Fluidized Bed Boilers | Conventional solid fuel power boilers burn the fuel in a fixed bed. In a fluidized bed boiler, hot air is blown at a high velocity up through a bed of sand, limestone, and ash causing the solid particles to fluidize, or behave like a liquid. Fluidization provides good mixing and allows for effective combustion when fuel is added. Fluidized bed combustion (FBC) provides several advantages for burning solid fuels, including higher efficiency, lower emissions, and the ability to burn low quality (e.g. high moisture) fuels. This course will focus on the operation of bubbling and circulating fluidized bed boilers. | 0.5 | Intermediate |
| Forklifts: Operation | This course is designed to familiarize participants with the basic design and operation of forklifts. After completing this course, participants should be able to describe how forklifts can be classified and identify the major features and common working dimensions of a forklift. They should also be able to explain how to inspect a forklift, how to recharge or refuel a forklift, and how to operate a forklift safely. | 2 | Intermediate |
| Fracking: Environmental Consequences | Hydraulic fracturing is done with surprising precision and with an eye on the environment, yet it is interesting how the public reacts to the practice in relation to other techniques used throughout the world. Valid points are made on both fronts. The major concern against fracking resides in the overall health and well-being of people close to a well site, as well as the land, water, and air that might be adversely affected. With proper examination and logic, this course was developed to provide insight and reason in a practice fueled by profit for some and by civil concern for others. We will explore the history, public and media perception, and environmental and economic impacts. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 2 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fresh Water Systems | Water is used in virtually every step of the pulping and papermaking process. It is used for cooking, bleaching, washing and fiber transport. It is used for steam creation and cooling. This module covers the major sources of mill raw water, the contaminants commonly found in raw water, as well as raw water testing and treatment. | 0.5 | Intermediate |
| From Project Manager to Principal 1: Foundations of Management | The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, and great expertise within each area. The leader who has excelled while dealing directly with projects and design issues must now learn to deal indirectly with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the first chapter of the From Project Manager to Principal course series, and explores the tools each business person needs to develop into a successful manager. Concepts such as transitioning from project developer to a management position, behavior changes, self evaluation and leadership qualities are discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| From Project Manager to Principal 2: Marketing Your Services | The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the second chapter of the From Project Manager to Principal course series. The focus of this course is the importance of marketing to project management and the overall success of your business. The material presented will help you better understand the project manager's role in creating winning proposals and successfully marketing your services. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| From Project Manager to Principal 3: Negotiation Outcomes & Strategies | The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the third chapter of the From Project Manager to Principal course series. This course explores the art of negotiation between a firm and a client and the vital role that project managers play in the discussion process. Key concepts such as negotiation strategies, scope, and compromise are presented to help you better understand how to reach a mutually beneficial agreement with your clients. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| From Project Manager to Principal 4 & 5: Manpower & Quality | The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course covers the fourth and fifth chapters of the From Project Manager to Principal course series, and it begins with a look at creating your work force. Important strategies for hiring, interviewing and managing your employees are presented. The course concludes by discussing the importance of quality management and outlines how to create an effective quality control program. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| From Project Manager to Principal 6: Financial Management | The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the sixth and final chapter of the From Project Manager to Principal course series  This course looks at the financial responsibilities of the project manager. Topics such as choosing the appropriate accounting method and improving cash flow are presented. The course also includes an in depth look at over 100 ways to cut overhead costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Fuel and Combustion Systems Safety - Business Contingency Planning | Welcome to Fuel and Combustion Systems Safety - Business Contingency Planning. Everything presented in this course is focused on helping you to reduce the probability and severity of a fuel or combustion system accident. However, nothing can bring all of this to zero risk. For example, there will always be things beyond your control, such as weather events. This course will help you to respond in an effective and timely manner and to know something about what to expect should there be an incident at your facility. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Combustion Basics | Welcome to Fuel and Combustion Systems Safety - Combustion Basics. In this course we lay a foundation for more complete technical understanding of fuel systems and combustion equipment. If you've been associated with this world, there may be little here that is new. If not, this is a course you may refer to over and over again in your career. The information in this course is out there in many forms and places. We will define combustion, review fuels, and explore the fire triangle. You'll get combustion chemistry and how to apply it to burner systems. We'll delve into environmental emission issues, basic burner design issues, and draft systems. We'll cover flames and instruct you in where to look and what to look for as well as fuel/air ratios evaluations. Throughout the course you will be given real-life stories so that you can see the practical applications for what you are learning. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment | Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment It's intuitive that controlling equipment risks involves regular safety testing and maintenance of equipment. However, much of the safety and risk management of fuel-fired equipment needs to occur in the design and specification of equipment, along with its installation and commissioning. In this course we address these issues as well as ongoing safety device testing requirements. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: People | Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: People. This course focuses on one of the three key concepts found to form the basis of long-term sustainable fuel and combustion system safety: people, policies, and equipment. These are the three legs of a three-legged safety and risk management approach. Any successful program must contain elements of each to be successful. The people piece involving controlling human error is among the most important. Human error has been the leading cause of many fuel and combustion system accidents. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies | Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies. There comes a time in the life of a fuels and combustion equipment safety and risk management program when thought must be provided to make things sustainable. The immediate fixes must become institutionalized. Knowledge-based practices need to become rule based. In this course 10 important concepts are summarized, reinforced, and framed in an approach for developing sustainable policies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning | Welcome to Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning. In this course we provide advanced concepts for facilitating the safe repair and cleaning of gas piping systems. Some of the most significant and horrific tragedies have come about from mistakes made in preparing gas piping for maintenance, bringing gas piping back into service, and trying to clean gas lines. The concepts presented in this course need to be made the subject of policies and practices with both designers and maintenance staffs. A section at the end of this course highlights a relatively new standard, NFPA 56, Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, which is central to this topic. It took many months of meetings with contributions from over a dozen experts to write NFPA 56. This is a very important and ground breaking piece of work that applies directly too many of the concepts presented in this course. Anyone who does or oversees activities related to gas line repairs and cleaning must become familiar with this standard. This course is not a design guide or a how to for gas line purging and cleaning. Each site and its circumstances and conditions are different, and nothing here should be seen as a replacement for sound engineering judgment and the requirements prescribed by applicable codes. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 2 | Intermediate |
| Fuel and Combustion Systems Safety - Gas Supply System Issues | Welcome to Fuel and Combustion Systems Safety - Gas Supply System Issues. Once natural gas piping is inside a facility, it is pretty easy to look up, see it marked, and understand what it is. Many people don't quite understand how the gas might have gotten there. It's important to know where the gas came from, who owned it and at what point, how the pressure got controlled, and how to shut it all off if necessary. In this course we also discuss alternative fuel considerations, such as propane, landfill, or digester gas service issues. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Global Perspective on Fuel and Combustion System Risks | Welcome to Fuel and Combustion Systems Safety: Global Perspective on Fuel and Combustion System Risks.<br><br>It's a big world out there and combustion equipment is everywhere. You can learn a lot by seeing what the state of the art is and is not in both developed and developing countries. This course provides insights from such experiences. You will see the good, the bad, and the ugly so that you can take advantage of them all without the pain that others have experienced to gain this knowledge. This course is especially important if you operate equipment in developing countries. This can be an entirely different experience and one that requires considerable thought about fuel choices, installation issues, and training of staff. To be successful your focus has to be on simplicity. Real-life stories in this course communicate this clearly. Don't be fooled by the title of the course. There's information here that applies for equipment operated anywhere.<br>Posted<br>by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights<br>reserved. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Natural Gas Piping Basics | Welcome to Fuel and Combustion Systems Safety - Natural Gas Piping Basics. Combustion systems start with fuel systems and fuel systems start with piping. By far the most common fuel burned throughout the world is natural gas. Natural gas use is growing even more in popularity as the United States develops shale gas deposits. For this reason the primary focus of this course is piping related to natural gas systems.<br><br>Before we discuss advanced gas piping concepts it's important to review the basics. In this course we attempt to discuss the most basic natural gas related piping concepts starting with the piping itself, how it's made, and how it's installed.<br>Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks | Welcome to Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks. The potential for catastrophes is much greater for boilers than for any other category of combustion equipment, because there is a twofold risk, fuels and saturated water/steam. Heating water in boilers or hot water heaters, is by far the single biggest application of heat energy and fuel trains on the planet. In the United States alone, a 2005 study indicated that there are over 163,000 commercial and industrial boilers. There are millions of residential boilers and hot water heaters as well. In this course we describe different boiler types and also provide insights into some of the hazards associated with steam systems, including safety relief valves and steam piping. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |
| Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! | Welcome to Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! In this course we will cover the safety aspects of fuel and combustion systems. We will explore the gaps in the knowledge of people responsible for system safety. You will get instruction in developing safe environments, codes and standards, and the organizations that publish the codes. We will also review risk assessment and the insurance industry. You'll also receive information on the possibility of personal criminal liability. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved. | 1 | Intermediate |
| Fundamentals of Business Crisis Management | In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan. | 2.5 | Intermediate |
| Fundamentals of Process Solubility | This course examines the basic concepts that relate to the processing of certain kinds of mixtures. Industrial applications of these concepts are also presented. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Furnace Fundamentals | An important part of an operator's job when working with any furnace is to make sure that the furnace is running efficiently in order to save fuel, maximize the amount o f heat that is produced, and minimize the amount of heat that is wasted. More importantly, careful furnace operation helps prevent explosions, injury, and damage to equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Furnace Introduction | Furnaces are an important source of heat for many industrial facilities. Furnaces, which can also be referred to as fired process heaters, are basically enclosed structures that produce heat by the combustion of fuels. This course will review the major components that make up furnaces, explain how combustion takes place inside a furnace, and identify the different flow paths inside a furnace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Furnaces: Operating Conditions | This course is designed to familiarize participants with general operator responsibilities associated with operating a furnace. After completing this course, participants should be able to identify instrumentation used to monitor furnace operating conditions and explain the basic operating principles, temperature control systems, and process fluid control systems. They should also be able to identify conditions that should be checked during furnace operations and explain how to detect and respond to abnormal conditions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Furnaces: Startup and Shutdown | This course is designed to familiarize participants with basic procedures for starting up and shutting down a furnace. After completing this course, participants should be able to describe basic procedures for preparing a furnace for startup, establishing the flow of process fluid, and lighting the burners. They should also be able to describe general considerations and basic procedures associated with planned furnace shutdowns and unplanned, or emergency, furnace shutdowns. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Fuses | This course introduces participants to the basic components of various types of fuses, explains how fuses are rated and sized, and describes basic procedures for troubleshooting a cartridge fuse. | 1 | Intermediate |
| Gas Chromatography | This course explains how sample components can be separated by gas chromatography. It discusses the basic principles of the gas chromatography process and describes the major parts of a typical gas chromatography system, including an auto sampler, packed columns, capillary columns, a flame ionization detector (FID), and a data system. It describes the major steps of a chromatographic analysis, including sample preparation and injection, sample separation, component detection, and data processing. It also discusses the basic features of a typical gas chromatogram and describes how the information presented on a gas chromatogram is used for qualitative and quantitative analysis. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Gas Pipelines - Public Awareness | Gas pipeline safety is critical - not just for your employees but for public safety as well. Therefore, it is imperative that gas operators have an effective awareness program to inform the public; public officials; emergency responders; as well as excavators as to the location and safe work practices around gas pipelines and what to do in an emergency. This course details Title 49 CFR 195.440 and will help operators of both natural gas and hazardous liquid pipelines to develop and implement public awareness programs consistent with the regulations and API RP 1162. | 1 | Intermediate |
| Gear Drive Basics | Gears are mechanical devices, designed with teeth specifically shaped to minimize wear, vibration, and noise, while also maximizing a power transmission's efficiency. They are able to reverse the direction of rotation, change the speed of rotation, and transfer rotation to a different axis. This course will describe the purpose, types, performance, and applications of gears. | 0.25 | Intermediate |
| Gears - Overhaul | The purpose of this course is to provide participants with an overview of gearbox disassembly and reassembly. Replacing damaged gearbox components is an important part of a maintenance technician's job. Understanding how to safely and properly disassemble and reassemble a gearbox is essential to any gearbox repair or overhaul. At the completion of this course, participants will be able to describe checks, measurements, and installation procedures for gearboxes. | 1 | Intermediate |
| Gears - Types and Characteristics | Gears are found in many types of equipment in industrial facilities. They are vital components, and a gear problem can cause a whole operation to come to a complete stop. This course covers what gears are, how they work, and different types found within industry. It also provides an overview of problems that may affect gears and how to prevent them. | 1 | Intermediate |
| Gender Identity: Changes Organizations are Making to Increase Awareness | Gender identity awareness is necessary to ensure equal respect and fair opportunities for everybody. So what does this mean for your organization? While every entity is unique and should consider the needs of their individual workforce, this course provides some basic steps you can take to better increase gender identity awareness. | 0.2 | Intermediate |
| Gender Identity: Understanding Gender-Neutral Restrooms in the Workplace | A gender-neutral restroom is, when we think about it, a simple idea. We use them in our homes without a second thought. However, in a workplace environment they are a topic of debate. This course will help you understand why gender-neutral restrooms matter and how they work. | 0.2 | Intermediate |
| Gender Identity: What does LGBTQIA+ mean? | When discussing gender identity and sexual orientation it's common to hear acronyms used to reference different groups, orientations, and identities. For several years, the most common acronym was LGBT, however to be more inclusive the acronym has evolved into many different forms. In this course we'll help you understand the pieces that make up the LGBTQIA+ acronym. | 0.2 | Intermediate |
| General Electrical Hazard Awareness for Site Safety | Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization. | 1 | Intermediate |
| General Troubleshooting Strategies | Effective troubleshooting uses various techniques to diagnose and fix problems. A series of logical steps will help to speed up the troubleshooting process. Rarely will simply guessing potential solutions for a problem work (or it may provide only a quick fix). There are five steps in the troubleshooting process. This course will discuss these five steps in detail. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Datum Selection and Interpretation | When using geometric dimensioning and tolerancing (GD&T) to describe a part, you often need to specify the orientation or location of a part feature with reference to other features on the part. From the perspective of a designer, two things must be kept in mind. First, you must communicate to the manufacturer or inspector how to treat imperfect features when making or measuring a part. Second, you must communicate the functional intent of the part. In this interactive, online course, you will explore datum selection and notation so you can learn to communicate these requirements. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Form and Size Tolerances | Geometric dimensioning and tolerancing (GD&T) is a symbolic language used to communicate the allowable variation within a product assembly and standardizes variations in measurement. Size tolerances define the allowable variation in the size of a feature, while form tolerances describe the allowable variations in the contours of features and surfaces on a part. In this interactive, online course, we will discuss size tolerances, and form tolerances, as well as cylindricity, and circularity. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Introduction | GD&T is a symbolic language that is used to accurately describe mechanical parts and to define the allowable deviations in size, form, and location for each feature, in a manner that allows the greatest flexibility for the manufacturer, while ensuring that the part will function as intended. This interactive, online course provides an introduction to GD&T fundamentals and basic notations. | 0.25 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Geometric Dimensioning and Tolerancing (GD&T): Orientation Tolerances | In Geometric Dimensioning and Tolerancing (GD&T), an orientation tolerance is used to control the parallelism, perpendicularity, or angularity of a part feature with respect to a frame of reference (defined by the datum references). This interactive, online course discusses the three different types of orientation tolerances: Parallelism, Perpendicularity, and Angularity and how they are communicated in GD&T. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Position Tolerances | GD&T position tolerances and dimensions define where features are located on a part with respect to other features. Position tolerances are typically used on holes, pins, tabs, slots, and other features of size. They are particularly useful when dealing with patterns of holes. This interactive, online course will discuss the use of GD&T for positional tolerances. It will also discuss bonus tolerance and functional gauges, as well as special considerations for positional tolerances. | 0.25 | Intermediate |
| Geometric Dimensioning and Tolerancing (GD&T): Profile and Runout Tolerances | Profile tolerances are typically used on irregular surfaces where flatness and position tolerances are insufficient to describe the part requirements. Runout tolerances are typically applied to rotating parts to maintain the form and location of features with respect to their bearing surfaces. This interactive, online course will show you how to properly apply and interpret profile tolerances for both surface and line elements, how to reference datums and apply basic dimensions to describe features, and how to use composite profile tolerances to reflect specific feature requirements. | 0.25 | Intermediate |
| Get It Done: Managing Email | Take Control Of Your Inbox! For many people email is a source of stress, when it really should be a valuable productivity tool. In this course well show you how to combine email best practices with the tools in Microsoft Outlook in order to effectively manage your email. | 1 | Fundamental |
| Get It Done: Sharing Calendars | How Do You Let Everyone Know Whats Going On? Its a common situation: you're working in an organization or department, and you need to share a calendar with your team. Whether its staffing schedules or company holidays, this course will demonstrate ten different ways you can share a calendar among your coworkers, including both physical (printed) and online calendars. | 1.5 | Fundamental |
| Get SMARTER with Goals | What is the difference between someone who simply has goals and someone who actually achieves their goals? The key isn't to work harder, it's to work SMARTER! The SMARTER goal setting system is the evolution of the SMART goal setting system that was introduced in the 1980's. In this course you will learn how to apply the S.M.A.R.T.E.R. goal setting system. You will understand the definition of each letter of the acronym S.M.A.R.T.E.R. and view real world examples of how it is applied to goal setting. In addition, you will have the opportunity to apply it to set your own goals and apply the methodology. Finally, you will be provided with additional strategies for achieving your goals. | 0.5 | Intermediate |
| Giving Feedback that Gets Results | Tired of giving feedback that falls on deaf ears? Learn how to give feedback that gets fantastic results with this effective leaders guide. Feedback can be much more than a criticism at the end of an event, in fact feedback can be both positive and negative and needs to be given not only strategically, but also consistently. Develop the skills to do exactly that through application exercises and a rich multimedia process. | 0.75 | Intermediate |
| Glassware | This course introduces participants to some of the basic methods of handling and using glassware in a laboratory environment. The course identifies and describes the functions of several commonly used types of laboratory glassware. Also covered are the basic procedures for using glassware such as pipettes and burettes. In addition, general safety procedures related to handling glassware are described, and efficient methods of cleaning and storing glassware are shown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Gmail Essentials 2015 | Power Your Gmail Account. Get The Maximum Benefit From All The Tools Gmail Has To Offer. Gmail Is One Of The Most Often Used, Under-Utilized Applications In The World. This Course Will Change The Way You Use Your Gmail Account - Guaranteed! | 2.25 | Fundamental |
| Green Building: Commercial High Performance Guidelines Part 1 | What is a high performance green commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, green commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures. | 5 | Intermediate |
| Green Building: Commercial High Performance Guidelines Part 2 | Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance green commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course. | 4 | Intermediate |
| Green Design: Economics of Green Building | In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies. | 2 | Intermediate |
| Green Design: Introduction to High Performance Building Design (Based on LEED v4) | There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable buildind design is also understanding th requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C). | 3 | Fundamental |
| Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4) | There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C). | 2 | Fundamental |
| Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4) | In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4) | This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed. | 2 | Fundamental |
| Green Design: Introduction to Sustainable Water Systems (Based on LEED v4) | The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places. | 2 | Fundamental |
| Green Design: Sustainable Daylighting Design (Based on LEED v4) | Daylighting can be one of the most difficult tools in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits. | 1 | Intermediate |
| Green Landscape Design: Reducing the Urban Heat Island Effect | As the earth's average temperature increases, cities, which are often significantly warmer than the surrounding landscapes (the urban heat island effect), will be faced with higher energy needs, increased pollution and degradation of air quality. The world is becoming more and more urban - it is estimated that within 50 years 80% of the world's population will live in urban areas. This interactive online course will address how we can mitigate the heat island effect so our urban cities remain healthy, economically viable places to live. | 2 | Fundamental |
| Ground Fault Circuit Interrupters | Normally, electric current is designed to flow through circuits at levels predetermined to be safe and return to the power source. Occasionally, conditions are created where the current amount or path is altered from the specified design. This course describes differences in the types of abnormal current flow that can occur within an electrical circuit because of the altered conditions and how ground fault circuit interrupters can protect against electrical shock. | 1 | Intermediate |
| Grounding | Grounding is the chief means of protecting life and property from electrical hazards such as lightning, line surges, short circuits, and ground faults. Grounding also helps ensure the proper operation of a system. This course provides an overview of what grounding is, why it is necessary, and effective grounding techniques. | 1 | Intermediate |
| G-Suite Essentials (Google) | Learn How 11 Tools from Google Can Boost Your Productivity. G-Suite (aka Google Apps and Google Drive) is more than just cloud-based email. This powerful and popular cloud-based suite includes apps to help you illustrate, communicate, collaborate, and organize your work - or your life. In this course, we'll cover the top features you'll find in your G-Suite. | 2.25 | Fundamental |
| Hand and Power Tools | The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines. | 0.38 | Intermediate |
| Hand Tools for Electrical Work | Electrical work requires the use of hand tools. Possessing the correct tools and the knowledge of how to use them correctly and safely is essential in order to successfully accomplish a job. The term electrical work encompasses a variety of jobs which involve the use of a range of different tools. Within that range are a basic set of tools that are used by both apprentice and accomplished electricians alike. It is this set of basic tools that will be introduced in this module. | 0.5 | Intermediate |
| Hand Tools, Part 1 | Hand tools are used every day in construction, manufacturing, and industrial settings as well as for do-it-yourself projects at home. Hand tools can make it safer and easier to do many different kinds of jobs. This course discusses the proper use and general care of a wide variety of hand tools. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hand Tools, Part 2 | Maintenance mechanics work with a variety of hand tools to perform many jobs, so it is important for mechanics to understand the function and care of common hand tools. Mechanics should know how to select the correct tool for any given job and how to use tools efficiently and safely. This course discusses the proper use and general care of pliers, vises, clamps and punches. | 1 | Intermediate |
| Handling Wet and Frozen Coal | Wet and frozen coal can create difficult problems for coal handlers, including clogging equipment and impeding or blocking coal flow. However, many of the problems resulting from wet or frozen coal can be greatly reduced, and sometimes entirely avoided, by following certain precautions, by properly using specialized equipment, and, in some cases, by planning ahead. This training program covers the types of problems caused by wet and frozen coal, as well as methods and equipment that are commonly used to avoid, minimize, or respond to these problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hardware | This course describes some of the equipment typically used in the lab, with emphasis on the safe operation of the equipment. The course describes lab equipment used for mixing and for grinding. The setup and lighting of a typical gas burner and how to use the burner to heat glassware are covered. Heating equipment that does not require an open flame and safety practices associated with heating materials are discussed. Several types of pumps and their safe operation are described. The parts and operation of a gas cylinder are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hazardous Waste Essentials | Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hazardous Waste: Treatment | Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste. | 1 | Intermediate |
| HAZWOPER Air Monitoring | Airborne contaminants present the greatest danger to hazardous waste and emergency response workers. Air monitoring is required to identify and quantify airborne hazards, so appropriate protective measures can be implemented. An air-monitoring plan must be included as part of a site-specific Health and Safety Plan (HASP). This module will discuss the requirements of an air monitoring plan, the sensors used to detect hazardous conditions, and what actions should be taken based on monitoring results. | 0.6 | Intermediate |
| HAZWOPER Chemical Protective Clothing | Chemical protective clothing is often required when responding to emergencies involving hazardous materials. This module describes the various types of chemical protective clothing used during hazardous waste operations and emergency response. | 0.38 | Intermediate |
| HAZWOPER Chemical Protective Clothing Selection | Chemical protective clothing is selected by comparing its capabilities and limitations to the hazards and required tasks. It is important to remember that no material is completely chemical resistant, and no material is effective for all chemicals. This module will describe important factors for selecting appropriate chemical protective clothing. | 0.43 | Intermediate |
| HAZWOPER Confined Spaces | All hazards typically found in regular work areas can also be found in confined spaces, but there are additional hazards that make confined spaces more dangerous. Confined spaces that present safety or health hazards require a permit for entry, so they are called permit-required confined spaces. This module will describe OSHAs permit-required confined space regulations and typical confined space emergency response procedures. | 0.51 | Intermediate |
| HAZWOPER Decontamination | Decontamination, or decon for short, is the removal of hazardous materials from workers and equipment to prevent adverse health effects. It is critical that all emergency responders are protected and off-site contamination is prevented. The correct approach must balance safety with responding in a timely manner to contain the incident. This module covers decontamination best practices. | 0.65 | Intermediate |
| HAZWOPER Emergency Response Plan | Planning is critical for safe, timely responses to hazardous material incidents. The HAZWOPER standard requires employers whose employees respond to releases of hazardous materials at any location to have a written emergency response plan. This includes both fixed-location employers like industrial facilities and those that deploy from a duty station to various locations, such as a fire department or emergency medical service. This module describes the required information in emergency response plans. | 0.46 | Intermediate |
| HAZWOPER ERG Introduction | The Department of Transportations Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries. | 0.38 | Intermediate |
| HAZWOPER Hazmat Physical Properties | The physical properties of a hazardous material provide information to help responders understand its behavior, whether in its container or after it has been released. This module describes the following physical properties: physical state, melting point, boiling point, vapor pressure, vapor density, specific gravity, expansion ratio, flash point, solubility, pH, reactivity, and toxicity. | 0.33 | Intermediate |
| HAZWOPER Incident Command System | An incident is any event that requires emergency response to protect life or property. OSHAs HAZWOPER standard requires all organizations that handle hazardous materials to use the Incident Command System (ICS). The ICS is a component of the National Incident Management System (NIMS) that provides a standard approach for incident management. ICS allows for the integration of facilities, equipment, personnel, procedures, and communication systems within a common organizational structure. ICS enables a coordinated response among various agencies, both public and private, and it establishes common processes for planning and managing resources. This module describes all aspects of the incident command system. | 0.7 | Intermediate |
| HAZWOPER Ionizing Radiation Safety | Radiation is energy emitted from a source that travels through space in a straight line at the speed of light. We are surrounded by radiation. Sunlight, radio waves, microwaves, and cell phone signals are all forms of low-energy radiation. These types of radiation are considered non-ionizing radiation and are relatively harmless. Ionizing radiation is radiation in the form of particles or electromagnetic waves that have enough energy to remove electrons from atoms in materials they strike. This module will focus on ionizing radiation, which can be hazardous. | 0.56 | Intermediate |
| HAZWOPER Medical Surveillance | HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and aren't experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed. | 0.4 | Intermediate |
| HAZWOPER Overview | Unexpected releases of hazardous materials pose a significant risk to workers and the general public. There are many causes of unexpected releases, such as human errors, equipment failures, or even natural disasters. To protect workers who work with hazardous materials, the Occupational Safety and Health Administration (OSHA) created the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). This module provides an overview of the HAZWOPER standard, who it applies to, and its requirements. | 0.35 | Intermediate |
| HAZWOPER Release Mitigation | Emergency release response actions can be divided into three main steps: 1. Identify the materials that have been released 2. Assess the severity and risk and 3. Select and implement methods to mitigate the release. Material identification and risk assessment are covered in other modules. This module focuses on the third step, release mitigation methods and their applicability. | 0.51 | Intermediate |
| HAZWOPER Respirators | Respirators are required when working around hazardous materials that present an inhalation hazard. A respirator is a personal protective device that covers at least the nose and mouth to reduce the amount of contaminated air inhaled by the user. This module will discuss the types of respirators typically used for hazardous waste operations and emergency response. | 0.7 | Intermediate |
| HAZWOPER Risk Assessment | The top priority of incident response is the safety of responders and the general public. Risk assessment is the most important aspect of an incident response because the incident cannot be managed safely if the problem and risks are not understood. Failure to do a risk assessment can result in serious injuries or death. Each incident is unique, so deciding what to do and when, can be difficult. This module will cover various hazard identification techniques to help you make better decisions when responding to hazardous material incidents. | 0.53 | Intermediate |
| HAZWOPER Safety and Health Program | HAZWOPER requires employers to have a written, site-specific safety and health program. The program must be designed to identify, evaluate, and control health and safety hazards and provide emergency response information. This module will provide an overview of the required safety and health program elements. | 0.25 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| HAZWOPER Site Control | Whether responding to an emergency or cleaning up hazardous waste, control of the work site is essential. Each site is unique and many factors must be considered when securing it, including the hazards present, size of the site, and the proximity of the surrounding community. The movement of people and equipment at the site must be carefully managed to minimize worker exposure and protect the public from hazards. This course describes practices and procedures for establishing and maintaining control of the site. | 0.61 | Intermediate |
| HAZWOPER Toxicology | A chemicals ability to cause adverse health effects in people or animals is indicated by its toxicity. The more toxic a substance is, the smaller the dose required to produce a damaging effect. This module will help you better understand toxicity and exposure limit information so you can prevent dangerous exposures. | 0.51 | Intermediate |
| HAZWOPER: Operations | OSHA has established several levels of training under the umbrella of HAZWOPER (Hazardous Waste Operations and Emergency Response). HAZWOPER training is required for personnel that may potentially be exposed to hazardous materials and for those involved in spill cleanup operations. OSHA defines HAZWOPER through their General Industry Regulation Title 29, section 1910.120, also known as 29 CFR 1910.20. This regulation defines several operations where HAZWOPER training is required. The Operations portion of the HAZWOPER training will cover the following: Levels of training which must be completed. Emergency plans and hazardous waste informational sources. Responses to various hazardous waste sources. Medical surveillance programs. Site monitoring, engineering controls and work practices Personal Protective Equipment (PPE) | 1 | Intermediate |
| Health Effects Caused by Mold | In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans. | 1 | Fundamental |
| Healthy Practices: Nutrition, Exercise, and Safety | We all know it is important to have healthy habits in our lives, but there is a big difference between knowing, and doing. Through application exercises and a rich multimedia process, this course teaches simple strategies to help you implement simple daily practices that lead to a healthy life. | 0.5 | Intermediate |
| Heat Exchanger Basics | Heat exchangers are typically used to transfer heat between fluids using conduction, convection, and radiation. This course details the three heat transferring methods used by heat exchangers as well as how heat exchangers are classified. It also illustrates common heat exchangers types such as shell-and-tube, plate, extended surface, and regenerative heat exchangers. | 0.25 | Intermediate |
| Heat Exchangers: Condensers and Reboilers | There are many different types of shell-and-tube heat exchangers, and each one is designed to accomplish a specific function in a process. In this interactive, online course, you will explore condensers and reboilers, two shell-and-tube heat exchangers that are designed to do specific jobs. | 0.5 | Intermediate |
| Heat Exchangers: Cooling Towers | In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons, it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower. | 0.5 | Intermediate |
| Heat Exchangers: Operation of Shell and Tube Types | Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger. | 0.5 | Intermediate |
| Heavy Truck Braking System and Braking Techniques | The single most important component in any vehicle is the braking system, especially on heavy trucks. The tractor portion of a tractor-semi trailer rig may have ten or more valves controlling the air flow to the brakes. This program reviews the types of braking systems found on large trucks versus cars and illustrates the importance of properly maintaining the braking system. | 0.25 | Fundamental |
| HEPA High Efficiency Filters | This webcast covers essential information regarding HEPA high efficiency filters and their importance in HVAC air handling systems. The course will include technical information about HEPA filters, as well as how HEPAs are constructed, tested, and maintained. We will also cover documentation regarding testing and maintenance of this important HVAC system component. | 1 | Fundamental |
| High Voltage AC Power, Part 1 | The purpose of this course is to introduce transmission and distribution (T&D) personnel to some of the factors that influence transmission efficiency and power loss. The course explains how T&D systems are designed to minimize power loss and how resistance, capacitive reactance, and inductive reactance can be manipulated to help maintain minimum levels of power loss. At the conclusion of this course, participants should know what power loss is and how power loss is affected by impedance. They should understand that impedance comes from resistance, capacitive reactance, and inductive reactance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| High Voltage AC Power, Part 2 | The purpose of this course is to teach participants basic alternating current (AC) power theory. The course focuses on the relationships between various types of power and on the functions of transformers, voltage regulators, and capacitors in a distribution system. At the conclusion of this course, participants should be able to define apparent power, true power, reactive power, and power factor and explain the meaning of each term in the context of three-phase AC distribution systems. They should also be able to describe how delta and wye configurations affect voltage and current and how voltage regulators and capacitors are used to affect the power factor in a three-phase distribution system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hiring Practices | Is she married? Do we have to post externally? These and other potentially loaded questions often appear during discussions regarding hiring. It is vital to understand what is appropriate and what is not when hiring practices is the name of the game. However, more than simply providing information, this course will take you through application exercises and provide a rich multimedia experience so that you can immediately apply what you have learned to your current situation. | 1.25 | Intermediate |
| Hot Metal Cutting Processes | Hot metal welding and cutting has been around for a long time, however, up until recently the applications were limited because generally the parts requiring welding had to be heated in a stationary fire or furnace. This course will briefly cover four of the major heat-based techniques for cutting or removing metal. This will include the principles and equipment used oxyacetylene cutting, air carbon arc cutting, plasma cutting, and laser cutting. | 0.5 | Intermediate |
| HVAC - Heating and Cooling | HVAC systems are used to maintain clean, conditioned air in enclosed spaces. The term conditioned refers to the fact that the temperature and humidity of the air are maintained within desired ranges. This module describes the two most common cooling systems as well as heating devices used in HVAC systems. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| HVAC - Hot Water and Ventilation | The purpose of heating, ventilation, and air conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial, and industrial facilities. This module contains information on hot water heating systems, air distribution systems, and HVAC control systems. | 0.5 | Intermediate |
| HVAC Acoustics | What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics. | 3 | Fundamental |
| HVAC Basics | The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and allow temperature- or humidity- sensitive equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This module will identify safe work practices to use when working around HVAC systems and the most common HVAC system components. | 0.25 | Intermediate |
| HVAC Design | This interactive webcast covers essential design information related to HVAC systems. Typical HVAC equipment and systems are covered, including key control concepts that provide reliable system operation. This course will be comprehensive in nature, reviewing most common types of air handling systems utilized today. | 1 | Fundamental |
| HVAC Distribution | This interactive webcast covers common design principles for HVAC distribution systems. We will review these distribution systems based on the various types of HVAC systems where they are used. The various HVAC operating concepts will also be reviewed and how they affect the design of the distribution system. | 1 | Fundamental |
| HVAC HEPA Filters | HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms. | 1 | Fundamental |
| HVAC System Fans | Centrifugal or Axial? Do you know how to select the best fan for your project? This interactive online course presents critical information regarding HVAC fans, motors and controls that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fan fundamentals, various types of fans, performance curves, fan vibration and sound, as well as drive motors and VFD drive systems. This course will serve as an important reference for people involved in HVAC fans design, selection, and installation, as well as operations. | 3 | Fundamental |
| HVACR Type I Certification | Type I certification requires that technicians know how to safely and properly evacuate refrigerants from small appliances containing 5 pounds or less of refrigerant using the appliance's compressor, system pressure, or self-contained recovery equipment. This interactive online course will cover these evacuation procedures, as well as how to deal with contaminants in a system and safety considerations. | 0.5 | Intermediate |
| HVACR Type II Certification | Did you know HVAC and Refrigeration technicians who maintain, service, repair, or dispose of medium, high, and very high pressure appliances containing more than five pounds of a controlled refrigerant must pass the EPA's Section 608 Type II certification exam? Type II certification requires that technicians understand several topics related to these systems, including leak detection, leak repair, evacuation requirements, recovery techniques, refrigeration, and safety. This interactive online course will cover the appliances included in the EPA Section 608 Type II certification exam, explain the techniques that are used to recover refrigerants, list evacuation requirements, and cover safety considerations for working with or around refrigerants, recovery equipment, and HVAC and Refrigeration systems | 0.5 | Intermediate |
| HVACR Type III Certification | Did you know Type III appliances differ from Type II appliances in that they operate in a vacuum on their low-pressure sides and sometimes on their high-pressure sides, which affects what happens when they develop a leak? When a Type III appliance develops a leak in a location that is under vacuum, air and/or moisture leaks in. In this interactive online course, we will cover the EPA 608 Type III certification exam, the techniques that are used to recover refrigerant, evacuation requirements and safety considerations for working with or around refrigerants. | 0.5 | Intermediate |
| Hydraulic Derricks | The purpose of this course is to familiarize participants with three types of hydraulic digging equipment: digger derricks, backhoes, and trenchers. The major working parts and controls and safe operating practices for each are described. Each piece of equipment is shown safely performing a job typical of those for which it is designed. After completing this course, participants should be able to locate and identify the major working parts and controls of digger derricks, backhoes, and trenchers. They should also be able to summarize the uses for which each machine has been designed and describe each machine's safe operation in the field. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hydraulic Hand Tools, Part 1 | The purpose of this course is to teach the basic principles of operation of three commonly used types of hydraulic hand tools: breakers, pole pullers, and tamps. The course also presents some of the basic principles of hydraulics and shows how these principles apply to the operation of a hydraulic power system. At the conclusion of this course, participants should have a basic understanding of how hydraulic breakers, pole pullers, and tamps operate. They should be able to identify the basic external and internal parts of the tools and explain their functions. They should also know the safety precautions that are applicable to using hydraulic hand tools on a job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hydraulic Hand Tools, Part 2 | The purpose of this course is to teach the basic principles of operation of three types of hydraulic hand tools: chain saws, impact wrenches, and presses. In addition to showing how these tools work, the course explains how to use them to perform some of the tasks commonly assigned to transmission and distribution linemen. At the conclusion of this course, participants should have a basic understanding of how hydraulic chain saws, impact wrenches, and presses operate. They should also know how to use and maintain each type of tool safely and efficiently. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Hydraulic System Basics | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course is an introduction to hydraulic systems and their uses. It covers hydraulic theory, common components, what mechanical advantage is, and how hydraulic fluid is contaminated. | 0.25 | Intermediate |
| Hydraulic System Equipment | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course covers the purpose and function of the major equipment used in a typical hydraulic system. | 0.25 | Intermediate |
| Hydraulic System Valves and Components | In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course covers the purpose and function of the valves and various components used in a typical hydraulic system to control pressure, transmit fluid, and filter contaminants. | 0.25 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Hydraulics: Actuators | This course is designed to familiarize participants with the various types of actuators that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of single-acting cylinders, double-acting cylinders, vane motors, gear motors, piston motors, and partial rotation actuators. | 2 | Intermediate |
| Hydraulics: Component Inspection and Replacement | This course is designed to familiarize participants with typical procedures for removing, inspecting, reassembling, and reinstalling hydraulic system components. After completing this course, participants should be able to describe how to remove, inspect, reassemble, and reinstall hydraulic valves, pumps, and cylinders. | 2 | Intermediate |
| Hydraulics: Diagrams | This course is designed to familiarize participants with hydraulic system schematic diagrams. After completing this course, participants should be able to interpret symbols that are used on hydraulic system schematic diagrams and use schematic diagrams to trace fluid flow through various types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Fluid and Reservoirs | This course is designed to familiarize participants with the fluid used in hydraulic systems and with the basic functions and uses of filters and strainers, reservoirs, conductors, and accumulators. After completing this course, participants should be able to describe the functions, characteristics, and types of fluid that may be used in hydraulic systems. They should also be able to describe typical uses of filters and strainers, describe the components and accessories of typical reservoirs, describe various types of conductors and fittings, and describe the basic functions and common uses of accumulators in hydraulic systems. | 2 | Intermediate |
| Hydraulics: Principles and Circuits | This course is designed to familiarize participants with the principles of hydraulic system operation and with the components and operation of some typical hydraulic circuits. After completing this course, participants should be able to explain how force is transmitted through a liquid and how pressure and flow are related in a hydraulic system. They should also be able to describe the main components and basic operation of several types of hydraulic circuits. | 2 | Intermediate |
| Hydraulics: Pumps | This course is designed to familiarize participants with the various types of pumps that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of gear pumps, vane pumps, and piston pumps. | 2 | Intermediate |
| Hydraulics: Routine Maintenance | This course is designed to familiarize participants with tasks associated with the routine maintenance of hydraulic systems. After completing this course, participants should be able to describe general considerations associated with routine maintenance. They should also be able to describe procedures for performing external inspections and for maintaining some system components. | 2 | Intermediate |
| Hydraulics: Troubleshooting | This course is designed to familiarize participants with general steps for analyzing problems in hydraulic systems. After completing this course, participants should be able to explain how to identify problems in hydraulic systems and describe common problems associated with hydraulic system components. | 2 | Intermediate |
| Hydraulics: Valves, Part 1 | This course is designed to familiarize participants with the basic design and operation of various types of valves used in hydraulic systems. After completing this course, participants should be able to describe the functions of flow and pressure in a hydraulic system; and identify and describe various types of manually adjusted valves, sliding spool valves, and spring-biased valves. They should also be able to describe various ways in which valves can be actuated. | 2 | Intermediate |
| Hydraulics: Valves, Part 2 | This course is designed to familiarize participants with the functions performed by various types of valves used in hydraulic systems. After completing this course, participants should be able to describe how valves control flow rate, flow direction, and pressure in a hydraulic system. They should be able to describe the basic operation of a pressure-compensated flow control valve, a temperature-compensated flow control valve, various types of flow control circuits, a pressure reducing valve, a relief valve, a sequence valve, and a counterbalance valve. | 2 | Intermediate |
| Hydrogen Fluoride Safety | HF acid is used throughout industry every day, and in most cases, without ill affect. However, it's important to talk about the potential hazards of HF acid as well as the safe work practices when working or handling HF acid. This course will introduce and describe the characteristics and uses of hydrogen fluoride (HF). It will discuss the signs, symptoms, and health effects of HF. Safe work practices and first aid procedures will also be discussed. | 1 | Fundamental |
| Hydrotreating and Catalytic Reforming, Part 1 | Refineries develop and improve products such as high-octane, low-knock gasoline; aviation fuel; and petrochemical feedstocks. The major role of hydrotreating and catalytic reforming units is to work together to produce these fuels and petrochemical feedstocks. This course examines the reactions and equipment that are involved in hydrotreating and catalytic reforming and identifies the process variables that have to be monitored and controlled. | 1 | Intermediate |
| IICRC 7 Hour General Mold Program | This is a 5-part, interactive course. Part one of this course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. The mold remediation industry is expected to follow the Standard of Care. Who defines what that is? Where can it be found? Who is the enforcer? Part 2 of this course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure. Part 3 of this course examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. Part 4 of this course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap. Part 5 of this course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms. | 7 | Fundamental |
| IICRC 7 Hour Mold Health Effects and Science Program | This program covers how mold growth can affect the health and safety of building occupants. The program also gives a little bit of a scientific background of mold. This program has 5 lessons with a test at the end of each lesson which must be passed with a score of 70% or better to move on to the next lesson. The 5 lessons are:Lesson 1: More Than Mold -Health Effects Associated With Mold and Water DamageLesson 2: Health Effects Caused by MoldLesson 3: Mold Safety and HealthLesson 4: The Science of MoldLesson 5: Mold Sampling | 7 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| IICRC 7 Hour Mold Remediation Program #1 | This is a 7-part, interactive course. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. In part 1, we will visit the terminology and the recent trends to equip you to make better decisions for your team and project. Part 2 will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. Part 3 of this course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. Part 4 of this course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. Part 5 will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. Part 6 shows you how to set the bar so the technicians know what to do, clients are happy, and each project has a better chance of profit and success. Part 7 covers equipment to use, how to use it, and how to take care of it. This course allows you to quickly learn from practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list. | 7 | Fundamental |
| Improving Work Habits: 01-Performance Issue or Poor Work Habit? | Distinguish between a performance issue and a poor work habit, which require a different problem-solving process. | 1 | Intermediate |
| Improving Work Habits: 02-Describing the Work Habit | Practice describing the team member's poor work habit focusing on behavior and fact, not attitudes or opinions. | 1 | Intermediate |
| Improving Work Habits: 03-Keep Ownership with the Team Member | What you should say in the context of work habit discussions when team members try to deny responsibility for the poor habit. | 1 | Intermediate |
| Improving Work Habits: 04-How Would You Empathize? | Use empathy in your discussions is important for team member self-esteem and buy-in. | 1 | Intermediate |
| Improving Work Habits: 05-Your Path to Improving Work Habits | Learn and apply the five-step process for improving poor work habits shown by your team members. | 1 | Intermediate |
| Improving Work Habits: 06-Mastering Improving Work Habits | Practice Improving Work Habits in a full scenario situation. | 1 | Intermediate |
| Improving Work Habits: 07-Improving Work Habits Health Check | Test your ability to apply Improving Work Habits concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Increase Your Listening & Communication Power | Employees, Projects, and Even Entire Businesses Fail Because They Don't Communicate Effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible. | 1 | Fundamental |
| Increase Your Listening Power (Effective Communication) | Employees, projects, and even entire businesses fail because they don't communicate effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible. | 1 | Fundamental |
| Increasing Building Energy Efficiencies: Policies and Practice | While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EPAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings. | 2 | Fundamental |
| Industrial Housekeeping | Poor housekeeping practices create hazards in our workplace. The concept of housekeeping includes picking up, wiping up, and cleaning up. This course will cover the benefits of a clean workplace and how to practice good housekeeping. | 0.25 | Intermediate |
| Industrial Math: Algebra | This course is designed to familiarize participants with the basic concepts of algebra. After completing this course, participants should be able to define terms commonly associated with the use of algebra, isolate an unknown in an equation, and use the processes of distribution and factoring. They should also be able to explain what ratios and proportions are and to explain the difference between a direct proportion and an inverse proportion. Finally, participants should be able to use a calculator to solve math problems. | 2 | Intermediate |
| Industrial Math: Basic Operations, Part 1 | This course is designed to introduce participants to the basic principles of addition, subtraction, multiplication, and division. After completing this course, participants should be able to describe how to add, subtract, and multiply numbers in vertical columns, and to explain how short division and long division is done. They should also be able to explain powers of numbers and roots of numbers, and they should be able to describe shortcuts for multiplying and dividing with multiples of ten. | 2 | Intermediate |
| Industrial Math: Basic Operations, Part 2 | This course is designed to familiarize participants with basic mathematical operations involving signed numbers, averaging, rates, fractions, decimals, and conversions. After completing this course, participants should be able to perform basic mathematical operations with signed numbers, perform combined operations in the proper order, find the average of a group of numbers, and calculate rates. They should also be able to add, subtract, multiply, and divide with fractions and decimals. Finally, participants should be able to convert between fractions, decimals, and percents; write numbers using scientific notation; and use conversion tables. | 2 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Industrial Math: Formulas, Graphs, and Trends | This course is designed to familiarize participants with the basic principles associated with using formulas, reading and interpreting graphs, and detecting and analyzing trends. After completing this course, participants should be able to explain what a formula is and use formulas to find areas, volumes, and volumetric flow rates. They should also be able to describe how graphs and charts can provide information about process variables. In addition, participants should be able to describe basic procedures for detecting and analyzing trends. | 2 | Intermediate |
| Industrial Pneumatic Technology: Aftercoolers, Driers, and Receivers | Air compressors are used in industry to store compressed air or inert gases, which can then be used to power air motors, cylinders, and other pneumatic devices. Clean, dry air is essential for pneumatic systems to function properly, so it is important to remove moisture and contaminants to ensure optimum performance of the system.<br>In this interactive online course, we will identify some components of air compressors, including aftercoolers, dryers, receivers, and air distribution systems. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Air Preparation | Pneumatic components and systems require compressed air that is free of contamination. No matter how well a system is designed, if contaminated air gets into the components, it can interfere with proper circuit operation.<br>In this interactive, online course, we will cover the types of contaminants that can be found in the air used in pneumatic systems and identify ways to clean it up. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Check Valves, Cylinders, and Motors | Selecting the right cylinders, check valves, and motors in pneumatic applications involves more than just picking them off the shelf. In this interactive online course, we will cover check valves and two types of pneumatic actuators: cylinders and motors. We will discuss the functions of each in a pneumatic system. We will also cover formulas used in sizing cylinders, cylinder volume, compression ratio, and more. | 1 | Intermediate |
| Industrial Pneumatic Technology: Compressors | In order to accomplish useful work with a pneumatic system, we need a device that can supply a sufficient amount of air at a desired pressure. The device that performs this function is called a compressor. In this interactive online course we will describe the principles of air compressor operation and give you details about the types of positive displacement and dynamic air compressors. We will instruct you in identifying compressor capacity and we'll give you parameters for selecting a compressor system. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Control of Pneumatic Energy | First off, energy that is transmitted through a pneumatic system must be directed and under complete control at all times. If it isn't, useful work may not be done, and machinery or machine operators could be harmed. In this interactive online course you will learn the basics of the pneumatic system, its operation, and its control. You will see diagrams of the components and get explanations for how the various parts work together. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Directional Control Valves | A directional control valve is an essential component that enables flow into different paths from different sources in hydraulic and pneumatic machinery. This fundamental part controls the stop, start and direction of flow. In this interactive, online course we will cover the different types of directional control valves and explain the methods used to classify these valves. We will discuss the use of poppet valves, and identify the different types of shear action valves. Lastly, we will discuss replacing valves and correct sizing for flow rate. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Energy Transmission | Do you know how compressors are used? Were you aware that gas is actually a fluid? In this interactive online course we will discuss the basics of gases and pressure. We will also discuss compressors and how pressure is measured. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Excess Flow Valves, Boosters, and Sequence Valves | How much do you know about Pneumatics? In this online, interactive course we'll be examining a few pneumatic components and showing how they can be used in some basic circuits. We'll begin with a definition and move through descriptions of the components and circuits. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Flow Control Valves, Silencers, and Quick Exhausts | Flow control valves used in pneumatic circuits affect actuator speed. Understanding how flow control valves operate will allow you to increase or decrease flow rate to meet the needs of your pneumatic circuits.<br>This interactive online course will teach you about several types of adjustable flow control valves available. You will learn how flow control valves operate by reviewing different pneumatic circuit examples. Additionally, you will learn how an orifice is used to control flow rate. You will also learn about special purpose devices used in pneumatic circuits. | 0.5 | Intermediate |
| Industrial Pneumatic Technology: Force Transmission | Pneumatic systems work because of a special property of fluids and the way these fluids transmit force and pressure. Understanding how fluids transmit energy will allow you to maintain your pneumatic control systems at desired operating conditions. This interactive online course will teach you about the different sources of pneumatic energy along with how force is carried through gases and liquids. Additionally, you will learn ways compressed air is used in pneumatic systems. You will also learn about calculation methods for determining how much pressure is generated in gases. | 0.5 | Intermediate |
| Infrared Analysis | The purpose of this course is to present a fundamental treatment of how to perform infrared (IR) analysis. The course starts by describing the basic concepts underlying IR, and then describes several methods used to prepare samples for analysis. After the major components of a typical IR spectrometer are identified, a demonstration of how to perform IR analysis is presented. The course concludes by introducing the graph used to show the results of an analysis, describing the characteristics of a typical IR spectrum, and identifying different ways IR results can be used in chemical plants. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Innovative Heat Pump Technology | Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology. | 1 | Fundamental |
| Inorganic Chemistry | Inorganic Chemistry is designed to introduce participants to some of the terms and principles associated with basic chemistry. The basic structure of an atom is described, and the ways atoms combine with each other are explained. In addition, the periodic table is introduced and used to determine mass relationships described by chemical reactions. This course also covers how chemical reactions can be affected by various conditions, and special attention is paid to equilibrium reactions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Input and Output Devices | This course covers the basics of all different kinds of input and output devices for computers from keyboards to the mouse. It also discusses data sorting, user data inputs, image inputs, visual outputs, audio outputs, and networks. | 0.25 | Intermediate |
| Instrumentation and Control: Automatic Process Control, Part 1 | This course is designed to familiarize participants with the basic concepts associated with automatic control of process systems. After completing this course, participants should be able to describe the functions of the four basic elements of an automatic process control system and explain how a process disturbance can affect a process control system. They should also be able to explain how feedback control and feedforward control can be used in process control systems. In addition, participants should be able to explain how resistance, capacitance, dead time, and lag time can affect a process control system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Automatic Process Control, Part 2 | This course is designed to familiarize participants with control modes used with automatic process control systems. After completing this course, participants should be able to describe two-position control, proportional control, reset control, rate control, and proportional-integral-derivative (PID) control and explain how each of these control modes works in a control system. They should also be able to explain how proportional band applies to a control system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Introduction to Control and Data Systems | This course is designed to familiarize participants with the role of information systems in plant operations and the elements of modern information systems. After completing this course, participants should be able to identify the information needs of typical plant functional elements and explain how information gets into an information system. They should also be able to describe system architecture and explain how to use environment software and application software. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Introduction to Process Control | This course is designed to familiarize participants with the basic elements, terminology, and functions of control systems. After completing this course, participants should be able to identify and describe the various types of input and output devices that are commonly used with automated control systems. They should also be able to identify and describe common types of control devices and control loop arrangements. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Concentration | This course is designed to introduce participants to some basic information about analytical variables and to some methods for measuring concentration in liquids and gases. After completing this course, participants should be able to define five analytical variables that are commonly measured in plants and explain how and why analytical variables are measured. They should also be able to describe the basic operation of several different types of analyzers that can be used to measure liquid and gas concentrations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Density, Clarity, and Moisture | This course is designed to introduce participants to some devices that can be used to measure density, clarity, and moisture. After completing this course, participants should be able to define various terms associated with density, clarity, and moisture and describe the basic operation of devices used to measure density, clarity, humidity, and moisture. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Level and Flow | This course is designed to introduce participants to instruments that measure level and flow. After completing this course, participants should be able to explain what level is and describe the basic operation of various direct level measurement devices and indirect level measurement devices. They should also be able to explain what fluid flow, flow rate, and total flow are and describe some common examples of direct flow measurement and indirect flow measurement. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: Measurement of Pressure and Temperature | This course is designed to introduce participants to some of the fundamental aspects of process variable measurement and to some of the basic instruments used for pressure measurement and temperature measurement. After completing this course, participants should be able to describe the function of process instrumentation and describe how to obtain accurate readings from instruments such as gauges, indicators, and recorders. They should be able to explain what pressure and temperature are and how they are expressed, and they should be able to describe the operation of several pressure measuring devices and several temperature measuring devices. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Instrumentation and Control: The Human-Machine Interface | This course is designed to familiarize participants with the different types of human-machine interfaces (HMIs) that are likely to be found in a modern plant. After completing this course, participants should be able to obtain process information using typical instruments, operate typical switch controls, use smart I/O devices and controller interfaces, and perform common computer operations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Insulators | Insulators, or nonconductors, are materials with electrons that are tightly bound to their atoms and require large amounts of energy to free them from the influence of the nucleus. Examples of insulators are rubber, plastics, glass, and dry wood. This course introduces participants to electrical insulators and their physical properties. In addition, it describes the various uses of insulators as well as some of the materials that are used as insulators. | 1 | Intermediate |
| International Building Code & More: Construction Types and Building Sizes | Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved. | 1 | Fundamental |
| International Building Code & More: Means of Egress | The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course.John Wiley & Sons, Inc. Copyright © 2011 All rights reserved. | 3 | Fundamental |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| International Building Code (IBC) - Assembly Spaces | This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council. | 3 | Fundamental |
| International Building Code Significant Changes to 2012 Edition | The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council | 3 | Fundamental |
| Internet and Computer Policy | As the internet grows, a touch of the screen can take you through boundaries previously only dreamed of. But do you know which boundaries it is okay to cross (or even encouraged) versus which to not even mention to you that now exist? Using application exercises and a rich multimedia process, this course will take you through basic internet protocol to keep you and your employees safe and focused. | 0.5 | Intermediate |
| Interpersonal Communication | Interpersonal Communication is a course designed to help supervisors apply the listening and speaking skills that are basics for good interpersonal communication on the job. After completing this course, participants should be able to describe three basic levels of listening, identify common mental habits that are barriers to effective listening, and describe how to use awareness of nonverbal communication to ensure effective interpersonal communication. They should also be able to describe common types of ineffective responses, explain what empathic responses are and how they can be used for effective interpersonal communication, explain what constructive feedback is and describe how it can be used for effective interpersonal communication, and describe techniques that can be used to deal with people who become emotional on the job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Interviewing Skills for Employees | What to wear? What to say? When to follow-up? The process of interviewing for a position can be nerve racking to say the least. Tell Me About Your Weaknesses takes you through a typical interview process and prepares you for the what you may encounter. Through application exercises and a rich multimedia process, you will learn top skills to ease your nerves and prepare you for any interview. | 0.5 | Intermediate |
| Interviewing Skills for Managers: Conducting an Interview | Can I ask this? Will she be a good fit? Who else should I invite to the interview? When you are on the other side of the table, there are still many questions to answer in order to have a good interview. Using application exercises and a rich multimedia process, you will learn the skills to conduct effective interviews in this timely course designed to help you get the right people in the right seats. | 0.5 | Intermediate |
| Interviewing the Right Way | There is nothing more important in the hiring process than the interview. The interview is an exchange of information between the candidate and the interviewer. It provides the candidate with the opportunity to sell him/herself, and management with the opportunity to sell the position and the organization. The importance of selecting the BEST person for a position cannot be over emphasized. The interview provides an opportunity for you to brand your company in the eyes of the potential employee, and to determine if the candidate is the right fit. The interview is a crucial process, that if done correctly, will ultimately help move your business forward. But if done incorrectly, could be very damaging to your company. This interactive, online course will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. | 0.5 | Fundamental |
| Interviewing the Right Way & Managing the Millenial (RV-PGM145) | The first module of this program will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. The second interactive module discusses how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun. | 1 | Fundamental |
| Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings | This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED). | 3 | Fundamental |
| Introduction to Heat Rate Improvement | By the conclusion of this course, participants should be able to describe what heat rate is and how it can be determined, and explain how the operating efficiencies of units and components can be determined. They should also be able to describe how operations, maintenance, and engineering groups contribute to the efficient operation of a power plant. | 1 | Intermediate |
| Introduction to Net Zero Buildings | Gaining particular momentum in the design and construction industry is the notion of Net Zero buildings. For many in the design and construction industry Net Zero is a lofty goal, and one not usually realized. This interactive webcast will focus on the concept of Net Zero, which has several variations of what the term means in practice. We will look at the practicality and marketability of a Net Zero building that uses no more energy than it generates. We will conclude with discussion of the world-wide application of Net Zero building. | 2 | Fundamental |
| Introduction to Smart Grid | This course will describe what the smart grid is and why it was developed. It will also describe advanced sensing and measurement techniques and control strategies that are used within smart grid systems. Finally, the course will provide an overview of advanced technologies developed for smart grid systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Ion Concentration Analysis | This course introduces participants to the basic principles associated with ions as well as laboratory procedures that depend on the presence of ions. The course includes an explanation of how ions are formed and how they can be represented. In addition, the course describes how a pH meter can be used to measure the acidity or alkalinity of a liquid and how a conductance meter can be used to measure a liquid's ability to conduct current. The course also includes an explanation of the process of ion exchange chromatography. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Irritants, Corrosives and Sensitizers | In this interactive online course, you will be introduced to the hazard classification and categories of an irritant, a corrosive, and sensitizer. In addition, you will learn how to identify these chemicals so you can protect yourself, and others, from them. Guidance for excessive risk will be given for these substances in the workplace. | 1 | Intermediate |
| ISO 9000 | The European Community (EC) is a single trading bloc including many countries in Europe. The International Organization for Standardization (ISO) is an organization working with the EC and other countries to develop worldwide standards for products and services. The series of quality system standards and guidelines is commonly called ISO 9000. The focus of this course will provide examples showing how process plant operations can be modified to comply with ISO 9000. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| IT Pro to Manager: 01-Managing the Development of Technical Professionals | In LearnSmart's Managing the Development for Technical Professionals video training, technical professionals will learn the skills to survive and thrive in the workplace. Students will also gain a better understanding of what it takes to develop organizational skills, such as time management, performance management, and stress management. | 1 | Intermediate |
| IT Pro to Manager: 02-Successful Communication and Process Management Skills | In LearnSmart's Successful Communication and Process Management Skills video training, new and future managers will gain a clear understand of just how important clear lines of communication are -- with both employees and superiors. In addition, students will see how easy it can be to become overwhelmed, with so much to do in what never seems like enough time. By concentrating on effective time management, these individuals can avoid much of the stress and pressure that comes with a new position. | 1 | Intermediate |
| IT Pro to Manager: 03-Developing Leadership and Transitioning into Management | In LearnSmart's Developing Leadership and Transitioning into Management video training, you will learn that management isn't always so much about leading, as it is about pointing the way. It is your duty to point the way by instructing, giving feedback and sharing your experience. This course looks at leadership roles, styles and behaviors, showing how to build the strengths of your team and overcome personality differences, as well as conflict. | 1 | Intermediate |
| It's my Job! Career Growth | While you may have a boss and frequent interaction with HR (Human Resources) your career is YOUR career and therefore YOUR responsibility to manage. In this instructive course, learn key steps to identifying what you want out of your career and how to make it happen through application exercises and a rich multimedia process. | 0.5 | Intermediate |
| Janitorial Safety | Janitorial workers have many varied responsibilities. It would be easier to talk about what tasks they DON'T perform, than what they actually do on a daily basis. Regardless of how many different tasks they perform or how busy they are, the simple truth is that their safety should be a companies top priority. This program trains your employees on how to identify the common hazards that janitorial staff face on a daily basis and the steps they can take to minimize risk. It also includes both English and Spanish versions on one DVD. Topics covered also include: Personal Protective Equipment, Back Injury Prevention,Bloodborne Pathogens, Slips, Trips and Falls, Electrical Safety, Chemicals | 0.25 | Fundamental |
| Kirchhoff's Laws | Kirchhoff's two laws reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. This course introduces Kirchhoff's voltage and current laws and explains how to use these laws to calculate the voltage and current of circuits. | 1 | Intermediate |
| Kitchen Safety | With the kitchen being one of the busiest departments in your establishment, employees may be tempted to take shortcuts when it comes to safety. New and experienced kitchen staff will benefit from watching this program as they learn the potential hazards present in the kitchen environment and what action to take to reduce the risk of accidents or injuries.Topics covered also include:Prevention of slips, trips and fallsKnife use and safetyKitchen machineryFire and burn preventionChemical and hazardous materials | 0.25 | Fundamental |
| Lab Technician Math, Part 1 | This course demonstrates some math fundamentals necessary to perform various calculations in the lab. The metric (SI) measurement system is described and practical instruction is given on the conversion to English units and vice versa. Exponential numbers are explained, and participants are shown how to perform arithmetic operations with them. Also, the rules for significant figures and rounding are described. Converting between fractions, decimals, and percents is demonstrated; and finally, ratios and proportions are explained and examples of their practical use are shown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lab Technician Math, Part 2 | This course describes how to perform calculations that are involved in preparing some types of solutions commonly used in labs. Specifically, it discusses calculations required for preparing dilutions, mass percent solutions, volume percent solutions, molar solutions, and normal solutions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Lab Technician Math, Part 3 | This course introduces basic concepts of statistics and statistical analysis that can be applied to lab work. It defines terms associated with basic statistical concepts and explains how statistical process control (SPC) can be used in labs. It explains how control charts (focusing on an individual X chart) can be used to monitor the performance of analytical systems and interpret the results of analyses. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Laboratory Safety (BBLASA0CEN) | This course looks at the hazards that are found within the laboratory and some ways to protect lab workers from those hazards. Also included is an overview of the OSHA Lab Standard, the elements of a Chemical Hygiene Plan, and some of the basic rules of good chemical hygiene. Chemical storage requirements and some general procedures to follow in case of an emergency are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Ladder Safety | How much training have you had to use, store, and maintain a ladder properly to prevent falls and injuries? Working on ladders is a necessary part of most jobs in construction, maritime, and general industry. However, the use and care of ladders are not always as easy as it appears for the worker. Training is necessary to know the tolerances of the ladder, its safety features, and how to use the ladder. There have been many reported deaths and serious injuries from improper ladder use such as falls, electrocutions, and slips. This interactive online course will give you the information needed to be aware of the hazards related to ladders and best practices for using ladders. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lead Contamination of Public Water Systems | Lead contamination of drinking water is a major topic of concern across the country, particularly in areas with aging lead pipes. Lead contamination in Flint, Michigan; Washington, DC; and Newark, New Jersey, has focused attention on America's decaying pipes. At least $384 billion of improvements are needed to maintain and replace essential parts of the country's water infrastructure to through 2030, according to the US Environmental Protection Agency. While these improvements are underway, treatment technologies can be utilized to significantly limit the migration of lead into the potable water supply. This interactive online course will describe these technologies and opportunities for implementation. | 1 | Fundamental |
| Lead with Strengths | It is common to focus on our weaknesses, however weakness will not make you excel. If you want to be an effective leader, it is important to focus on and learn to lead with your strengths. Everyone has strengths. Things they are naturally good at. Do you know your strengths and how they can help you to be an effective leader? This guide will teach you how to identify and lead with your strengths. | 0.5 | Intermediate |
| Leading Engaging Zoom Meetings | Maximize your meetings in Zoom. Meeting virtually doesn't have to be boring talking heads on a screen! If you know how to use the tools Zoom provides, you can lead engaging meetings where everyone can participate. Learn the settings you'll need to begin and the basics for sharing your screen, using whiteboards, annotation, and polls. Then, move into more complex meeting structures like breakout rooms for small group collaboration and how to manage them. End it with guidelines to heighten interest, participation, and engagement. | 1 | Intermediate |
| Lean Manufacturing: Continuous Improvement and the PDCA Cycle | Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes. | 0.5 | Intermediate |
| Lean Manufacturing: Determining the Voice of the Customer | The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a businesses success and describes how to anticipate and meet customer needs and requirements once this data is captured. | 0.5 | Intermediate |
| Lean Manufacturing: Kaizen | Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet todays challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day. | 0.5 | Intermediate |
| Lean Manufacturing: Kanban | Did you know the word Kanban is of Japanese origin and translates to billboard or signboard? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it. | 0.25 | Intermediate |
| Lean Manufacturing: Poka-Yoke | This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction. | 0.25 | Intermediate |
| Lean Manufacturing: Pull Systems | This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While well introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes. | 0.5 | Intermediate |
| Lean Manufacturing: Standardized Work | This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting. | 0.5 | Intermediate |
| Lean Manufacturing: Value and Waste | Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value. | 0.5 | Intermediate |
| Lean Manufacturing: Value Stream Mapping | Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool. | 0.5 | Intermediate |
| Lean Manufacturing: Visual Management | Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information. | 0.25 | Intermediate |
| LEED v4 - Certified Buildings Under the O&M and BD+C Categories | This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| LEED v4 - Operations and Maintenance | Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings. The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings. | 2 | Fundamental |
| LEED v4 and Data Center Construction | Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment. | 2 | Fundamental |
| LEED v4 and the Future of Green | The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criterions and its impact on the future of sustainable new construction. | 1 | Intermediate |
| LEED v4 for Commercial Office Buildings | This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest bang for your buck. Real life relational stories are included to help reinforce some of the concepts and actions. | 1 | Fundamental |
| LEED v4 for Existing Buildings: Operation & Maintenance (EBOM) | This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance. | 2 | Fundamental |
| LEED v4 for Healthcare Facilities | This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. | 1 | Fundamental |
| LEED v4 for Hospitality Projects | This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System. | 1 | Intermediate |
| LEED v4 for Interior Design + Construction | Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only green with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources. | 1 | Fundamental |
| LEED v4 for New Construction Projects | This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4. | 2 | Fundamental |
| LEED v4 for Retail Projects | This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System. | 1 | Intermediate |
| LEED v4 for School Buildings | In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest bang for the buck. We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform. | 1 | Fundamental |
| LEED v4: Building Design and Construction | Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories | 1 | Fundamental |
| Legionella Prevention and Control | In 1977, the Centers for Disease Control and Prevention (CDC) identified a condition known as Legionella pneumophila, which is a waterborne disease responsible for 34 deaths at an American Legion convention in Philadelphia. This interactive online course presents the causes and risk factors for Legionella contamination and some of the problems associated with Legionella in water systems in commercial buildings. Other topics include the ANSI/ASHRAE 188-2015 Standard and testing methodology and frequency. | 0.5 | Intermediate |
| Lighting Basics | All workplaces depend on high quality lighting. In addition to providing illumination of workspaces, good lighting also plays a role in enhancing employee satisfaction and performance, as well as providing general comfort and safety. It reduces the risk of eye strain and any of the physical symptoms that accompany it, including headaches or neck pain. In the industrial setting, lighting does all this, plus it provides clear visual indication of functions, and control of various processes. This module will describe different types of lights and their common uses. | 0.25 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Lighting Controls Essentials | Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions.<br><br>This interactive online course covers the big picture of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels. | 2 | Intermediate |
| Liquefied Natural Gas (LNG): Emerging Issues in the LNG Industry | In this online interactive course, we provide an overview of some of the key emerging issues in the LNG industry including whether North America will become a major LNG exporter, the potential impact of the Panama Canal expansion project on LNG trade, the growing role of floating LNG (FLNG), the potential influence of the Gas Exporting Countries Forum (GECF) to act as a Gas OPEC, and the emergence of LNG as a shipping and vehicle fuel to aid in emission reduction efforts around the world. | 1 | Intermediate |
| Liquefied Natural Gas (LNG): Evolution of LNG Markets & Primary Demand Regions | The first ever US-UK shipment of LNG in 1959 on the Methane Pioneer demonstrated that large quantities of LNG could be transported safely across the ocean and opened up the possibility of transporting large volumes of natural gas from otherwise stranded fields to distant destinations based on consumer demand. This interactive online course will discuss the evolution of LNG markets, including the history of LNG and an overview of the three major LNG Markets - Asia-Pacific LNG market, the European LNG market, and the North American/Atlantic Basin LNG market, which includes North America, South America and Latin America. | 2 | Intermediate |
| Liquefied Natural Gas (LNG): Global LNG Demand & Emerging Demand Markets | Until the late 1990s, LNG was a niche industry operating mostly in the Asia-Pacific region. As the world entered the 21st century, however, global demand for LNG surged in a perfect storm created by the industrial and commercial boom around the world that resulted in an ever-growing appetite for all energy resources. Between 2000 and 2008, the LNG industry entered a period of rapid growth with huge increases in supply coming from a growing number of LNG producing countries. However, between 2008 and 2009, the world endured the worst recession since the Second World War with demand for all energy dropping significantly. In 2010, as global economies appeared to be emerging from the recession, global natural gas demand resumed its long-term upward trajectory with the IEA projecting that natural gas will be the only fossil fuel for which demand is higher in 2035 than in 2008. While the ultimate wildcard for all natural gas demand is the pace and strength of the global economic recovery, the long term outlook for natural gas and LNG remands strong. In this interactive online course, we will identify LNG demand drivers. We will examine existing and emerging Asia-Pacific and European importers, and discuss the reasons behind the increased LNG demand in Latin America. We will also consider the natural gas puzzle faced by the Middle East/North African region. Lastly, we will investigate the market trends causing the U.S. to shift from LNG importer to LNG exporter. | 1 | Intermediate |
| Liquefied Natural Gas (LNG): Global LNG Projects & Players | How well versed are you in the Liquefied Natural Gas (LNG) industry? Do you know where and how much is produced? In this interactive online course, we will examine the specifics of the global LNG mega projects in Qatar and Australia, and also discuss new players and projects in countries such as Russia, Peru, Yemen, and Papua New Guinea. | 2 | Intermediate |
| Liquefied Natural Gas (LNG): Global LNG Supply | Although worldwide natural gas resources are sufficient to meet projected increases in demand, almost half of the world's proved natural gas reserves are found in just three countries: Russia, Iran and Qatar.<br>With the world's largest proved natural gas reserves, the Middle East and Africa are expected to account for 72 percent of the increase in natural gas exports by 2030, mainly to supply Europe and North America, although Australia is also emerging as a key LNG exporter and also potentially the US and Canada. Understanding where new LNG supply will come from is one of the critical aspects of understanding the dynamics of the global LNG industry. This interactive online course provides a description and overview of key LNG supply projects around the world, discusses the impact these projects will have on the LNG global market, and identifies some of the challenges that may be faced by new projects. | 1 | Intermediate |
| Liquefied Natural Gas (LNG): Globalization of LNG | The growth in LNG trade over the past few years has led many to question whether the LNG markets have become globalized and whether LNG could ever trade as a global commodity. This interactive online course discusses the increased globalization of LNG markets and whether LNG could someday trade as a global commodity. The growth of LNG trade will be examined as well as the traditional oil-linked pricing structure for LNG. Recent pricing issues and the growing spot and short-term LNG market will also be discussed. | 1 | Intermediate |
| Liquefied Natural Gas (LNG): Natural Gas & LNG in the 21st Century | Policy makers around the globe continue to grapple with issues related to energy security, energy affordability, and an expected increase in demand for all energy sources. At the same time, concerns about global climate change and reducing greenhouse gas emissions remain in focus as the world struggles to define the path to a sustainable energy future. Since natural gas is an abundant, affordable, and clean-burning fuel, many countries around the world are increasingly looking to natural gas to play a key role in powering the future. The prospects for natural gas are so promising that the International Energy Agency (IEA) has suggested that the 21st century could be the Golden Age of Gas with demand for natural gas projected to increase by more than 50 percent from 2010 levels and account for over 25 percent of the world's energy supply mix by 2035. This interactive online course explores the growing role of LNG as the glue linking global gas markets and identifies the key opportunities and challenges for the LNG industry in the context of a number of competing drivers, including economic development, energy security, and climate change. | 1 | Intermediate |
| Liquefied Natural Gas (LNG): Safety & Environmental Sustainability of LNG | Do you have a solution to meet an ever-growing energy demand around the world? Many governments are looking to Liquefied Natural Gas. Not everyone agrees the LNG is the best answer. They claim there are serious safety and environmental impacts that negate the benefits of LNG as a fuel. In this interactive online course, we analyze how LNG can play a role in a sustainable energy future. Specifically, we will focus on the safety issues and environmental issues that accompany the use of LNG. | 1 | Intermediate |
| Liquefied Natural Gas (LNG): The Impact of Shale Gas on Global Gas Markets | The tremendous boom in US shale gas has been a game changer all over the world. What do you predict for the future? This online interactive course will discuss shale gas. We will describe the markets as well as importing and exporting liquefied natural gas worldwide. We will focus most on North America. | 1 | Intermediate |
| Liquefied Natural Gas (LNG): The LNG Value Chain | The LNG value chain comprises a complex set of activities, all of which are capital intensive and require specialized knowledge in order to execute successfully. This interactive online course discusses the main stages of the LNG value chain - liquefaction, shipping and regasification and identifies the technologies used in these processes. Various LNG project structures and some basics of LNG measurement will be covered as well.<br>The information in this course on the LNG value chain is designed to provide you with the foundation to develop a successful LNG project. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Liquefied Natural Gas (LNG): The Role of Shale Gas in the Golden Age of Gas | How much do you know about shale gas? Since the development of unconventional gas resources is different and more challenging than conventional resource development, a basic understanding of the different types of gas reservoirs is helpful in order to appreciate the difficulties involved in extracting natural gas from certain types of reservoirs. In this interactive online course we will discuss the shale gas revolution, it's production, and the technologies used to unlock it from shale. | 1 | Intermediate |
| Liquid Level Measurement, Part 1 | Many industrial liquids are important to plant operations. Accurate level measurements are an essential part of process control for efficient plant operation. Devices for making liquid level measurements are common throughout industry. You need a basic understanding of liquid level instruments design, how the instruments operate, and how they're maintained. In this course, you will explore a number of different devices used to measure and control liquid levels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Liquid Level Measurement, Part 2 | This course will familiarize you with various devices and systems that use pressure to measure liquid level. Indirect level measurement instruments measure quantities, such as liquid pressure, that vary due to liquid level changes. Indirect level measurement instruments are a practical way to measure liquid levels, and the converted signals are used for indication and control functions throughout the plant. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Logic Technology, Logic Functions, Sequential Logic, and Analog Conversion | The field of electronics deals with information in the form of electrical signals. Most of the electrical signal information that people encounter is in analog form. An analog signal is one that is continuously variable between the minimum and maximum values. This course begin with a discussion on digital and analog signals, covers truth tables and common logic functions, and then concludes with logic circuits and analog conversions. | 0.5 | Intermediate |
| Lubricants and Oils | When two moving solid surfaces interact, material from those surfaces can be lost. This loss of material is known as wear. Wear on equipment can shorten the lifespan of machines, disrupt production, and result in product loss. Lubrication is the process of using substances called lubricants to reduce wear. This course covers what lubricants are, what they are made of, and common types of lubricants. This course also illustrates the differences between common lubricating methods as well as safe storage and handling requirements. | 0.5 | Intermediate |
| Lubrication Basics | Whenever two moving, solid surfaces contact each other, there is friction which creates heat and leads to destructive wear. Lubrication is the process of introducing a lubricant substance between the surfaces in order to reduce that friction and wear. A lubricant can be a solid such as molybdenum disulfide or Teflon; a semi-solid, such as grease; a liquid, such as oil; or even a gas such as air. This module will focus primarily on the industrial uses of liquid oils and grease as lubricants. | 0.5 | Intermediate |
| Magnetism and Electromagnetism Basics | A magnet is a material that attracts other metals. About 4,000 years ago, it was found that a stone called magnetite attracted pieces of iron. It was later found that a long piece of magnetite would align itself with the north and south poles of the earth. Experimentation showed that one end would always align with the North Pole and the other end with the South Pole. This module will discuss the principles of magnets, magnetic fields, and types of magnets. | 0.25 | Intermediate |
| Maintenance of Air and Oil Circuit Breakers | Circuit breakers are devices that open or close a set of electrical contacts to interrupt or complete an electrical circuit. A switchgear is a self-contained, enclosed assembly of circuit breakers and related components. Both circuit breakers and switchgear serve to protect plant circuits from various electrical problems. They can switch power on and off, and they can isolate circuits on which work is being performed. Electrical maintenance personnel are responsible for keeping circuit breakers and switchgear working properly and for performing periodic inspections and any necessary repairs. This course covers the operation and maintenance of high-voltage circuit breakers and switchgear (4 KV and above) that are typically used for in-plant distribution of electrical power. Many high-voltage circuit breakers used for transmission purposes consist of three single-phase breakers connected to a common operating mechanism. However, the distribution breakers discussed in this course are three-phase breakers. | 1 | Intermediate |
| Maintenance of High-Voltage Circuit Breakers | After completing this course, you should be able to describe the basic operation of an oil circuit breaker, an air-magnetic circuit breaker, a vacuum circuit breaker, and an SF6 gas puffer circuit breaker. You should also be able to explain how each type of circuit breaker extinguishes an arc, and you should be able to describe basic procedures for racking out high-voltage circuit breakers and performing routine maintenance and testing on them. | 1 | Intermediate |
| Maintenance of Low-Voltage Circuit Breakers | Circuit breakers and switchgear are among the most common, yet critical, components of an industrial electrical system. Circuit breakers are devices that interrupt or complete electrical circuits. They protect systems and equipment from the effects of excessive current, and they provide a way to switch power on and off and isolate circuits or equipment on which work is being performed. Switchgear is basically a self-contained, enclosed assembly of circuit breakers and auxiliary devices. Part of your responsibility involves keeping circuit breakers and switchgear working properly. So, it is important for you to have a good understanding of how circuit breakers work and the types of maintenance procedures that are typically performed on them. | 1 | Intermediate |
| Making Humor Work at Work | Being able to laugh and have fun in the workplace is a benefit to employees, their supervisors, and their companies. In addition to being just plain old fun, laughter is good for business. Studies show that employees who love to laugh are more creative and more productive. They make better decisions. And they get along better with their co-workers. LearnSmart's Making Humor Work at Work video training course shows workers how to problem-solve, defuse resistance to change, disarm anger, and improve and increase memory through the effective use of humor on the job. | 1 | Intermediate |
| Management 101: 01-Introduction to Management | You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resistors to change. Overall, you will be better equipped as a new manager. | 1 | Intermediate |
| Management 101: 02-Leading and Communicating as a Manager | Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Management 101: 03-Making an Impact as a Manager | Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact. | 1 | Intermediate |
| Management 101: 04-Taking Control as a Manager | Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department. | 1 | Intermediate |
| Managing a Millennial | Millennials are the generation born between 1980 and 1994 who have been given a reputation that says they have an inborn distrust of hierarchy and bureaucracy, and are prone to job-hopping. But is this reputation actually true? To manage your Millennial employees, you must understand the group and how they compare to other generations before them. How to manage and motivate what some call the trophy generation is a hot topic of conversation and a concern for many businesses and managers. The good news is that millennials are like most people, they aim to have a job where they are valued, make an impact and develop their skills, all while being interested in what they do and being fairly paid for their effort. They want a secure job, but they aren't looking to make one job their life's work. This interactive, online course will discuss how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun. | 0.5 | Fundamental |
| Managing a Work Group | Managing a Work Group is a course designed to familiarize participants with techniques for building and maintaining a high performance work group. After completing this course, participants should be able to describe how to work with group members to set performance goals, provide reinforcement for good performance, and build employee involvement in group activities. They should also be able to describe considerations associated with effective training, ways to diagnose performance problems, and techniques for practicing assertiveness. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Managing Complaints: 01-The Difficulties of Managing Complaints | Discover the difficulties of managing team member complaints and how to overcome these issues. | 1 | Intermediate |
| Managing Complaints: 02-Handling Complaints Using Active Listening | Use active listening skills to effectively handle team member complaints. | 1 | Intermediate |
| Managing Complaints: 03-Your Path to Managing Complaints | Learn and apply the five-step process for effectively handling complaints from your team members. | 1 | Intermediate |
| Managing Complaints: 04-Mastering Managing Complaints | Practice Managing Complaints in a full scenario situation. | 1 | Intermediate |
| Managing Complaints: 05-Managing Complaints Health Check | Test your ability to apply Managing Complaints concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Managing Contractors and Temporary Employees | In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department. | 3.25 | Intermediate |
| Managing Generation X | You have probably heard the term Generation X used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers. | 1 | Intermediate |
| Managing Stress at Work | Eu-stress and Di-stress. One positive, one negative. One can push us to new levels of achievement, the other can kill. In this course, learn the difference between positive and negative stress, and how to manage both to help you achieve the results you desire. Reduce the negative stress in your world by using application exercises and a rich multimedia process. Check process to identify pain points and take action to regulate the stress you experience. | 0.5 | Intermediate |
| Managing Technical Professionals | In LearnSmart's Managing Technical Professionals video training, managers are given a thorough overview of how to effectively lead technical professionals. You will cover material on the high-tech business environment to how to establish and maintain credibility. You will find discussions on how to keep technical professionals motivated. And how, when inspired, these dedicated individuals will help support a companies strategic objectives. But to do this, they need assistance from managers in identifying their career goals. Overall, you'll learn how to assist your organization and the technical professionals you manage in reaching and exceeding their goals. | 2.75 | Intermediate |
| Managing Up: Strengthening Business Relationships | Have a great rapport with your employees and your peers? You're not done yet! Learning how to manage up is a key component of any successful career. Through application exercises and a rich multimedia process, this course will teach you what you need to know to create positive relationships with those you report to. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Managing Yourself | Managing Yourself is a course designed to familiarize participants with techniques for making a smooth transition from worker to supervisor and with some tools that can make a supervisor's job easier. After completing this course, participants should be able to describe techniques for starting off on the right foot as a new supervisor. They should also be able to describe how to use tools such as delegation and time management. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Mass Spectrometry | This course describes the process of mass spectrometry and the analytical instrument that is used to perform this process. The focus is on a typical bench top gas mass/mass spectrometry (GC/MS) system. The system featured in this course includes a gas chromatograph with a capillary column, directly coupled to a mass spectrometer. The course explains the basic principles of mass spectral analysis, identifies the major parts of a typical GC/MS system, and describes the major steps of sample introduction, ionization (by electron-impact ionization), fragmentation, separation by mass (in a quadruple mass analyzer), detection of ions (by an electron multiplier), and data processing. The basic features of a typical mass spectrum and a typical total ion chromatogram are also described, and the use of the data system for controlling the GC/MS and for data processing, including performing library searches of mass spectra, is discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Mastering Access 2016, Basics | Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules<br>Microsoft Access lets ordinary users develop powerful apps customized for their business needs.<br>In this course experienced Microsoft Access trainer Kathy Jones will walk you through building your first Microsoft Access database, including creating tables, using queries, and implementing forms and reports. | 3 | Fundamental |
| Mastering Access 2016, Intermediate | Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules<br>Microsoft Access lets ordinary users develop powerful apps customized for their business needs.<br>In this course experienced Microsoft Access trainer Kathy Jones will build upon the basics of tables, queries, forms, and reports covered in the Basics course. Starting with the basics of relational database design, this course will expand your knowledge of Microsoft Access by covering topics such as table relationships, query joins, subdatasheets, field validation, parameter queries, and more. | 2.75 | Fundamental |
| Mastering Excel 2016 | The World Is Filled With Two Kinds Of People: A Handful Of People Who Are Masters Of Excel, And The Millions Of Others Who Wish They Were. If you've mastered Microsoft Excel 2016 then you have one of the most practical and valuable skill sets in all of modern business. A spreadsheet guru can work wonders - from organizing lists, to creating multi-layered, interactive reports, to revealing answers to business-critical questions like ROI, budget allocations, tracking expenditures, and more. This course covers everything you need to know about Microsoft Excel 2016, from the very basics to the most advanced features and functions.<br>Note: This course covers all the objectives required in the Microsoft Office Specialist exam 77-727. This course includes all of the modules from the Basics and Intermediate courses, as well as 26 additional, more advanced, training modules. | 11.5 | Advanced |
| Mastering Excel 2019 - Advanced | There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were.<br>When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to use links, Lookup functions, Data Validation, Macros, data tables, and more. | 4.3 | Fundamental |
| Mastering Excel 2019 - Basics | There are two kinds of people: Those who are masters at Excel, and those who wish they were<br>When you master Excel, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wondersfrom organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course is your first step towards becoming an expert at using Excel 2019. | 4.5 | Fundamental |
| Mastering Excel 2019 - Intermediate | There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to manage data, charts, and tables, and how to use powerful tools such as Pivot Tables, Pivot Charts, Slicers, Timelines, and more. This is our most requested training course! If you learn to use Excel 2019 or Excel 365, you will start to see how useful it is in your life—from formatting your grocery list to calculating complex ROI values. If you are comfortable with the basics of Excel, let our Microsoft Certified Trainer, Kathy Jones, walk you through more advanced topics that will take your spreadsheets to the next level and help you to be more efficient in analyzing your data.<br>Topics covered include: Working with named ranges Inserting functions Using advanced sorting and filtering techniques Inserting TablesApplying advanced Conditional Formatting Inserting charts and graphics Applying advanced charting tools Working with Pivot Tables, Pivot Charts, Slicers, and Timelines | 5 | Intermediate |
| Mastering Google Drive (2020) | Learn to collaborate, store, share, and access your files any time from any device. It's time to leave attachments behind. Google Drive is an accessible, secure, and free tool for collaborating, sharing, editing, and storing your files in the cloud. If you have a Google account, you already have a Google Drive! In this course, Google expert Laurie Sherrod shows you how to make the most of your Google Drive including all the tips and tricks that will make it easy and fast to get started. It's already integrated with other Google Apps like Gmail, Google Docs, and Google Sheets. By the end of this course, you will understand the purpose and features of Google Drive and be ready to use the application to store, edit, and share files and folders any time and from any device. | 1.25 | Fundamental |
| Mastering Microsoft Project 2016 – Part 1 | In this course PMP and Certified Technical Trainer Christina Tankersley will familiarize you with the basic features and functions of Microsoft Project Professional 2016 so you can use it effectively and efficiently in your real-world environment. This course covers the critical knowledge and skills a project manager needs to create a project plan with Project 2016 during the planning phase of a project. In other words, if your manager assigns you to lead a project, this course will enable you to draft a project plan with Project 2016 and share it with your supervisor (and others) for review and approval. | 2.25 | Intermediate |
| Mastering Microsoft Project 2016 – Part 2 | In this course, PMP and Certified Technical Trainer Christina Tankersley will demonstrate how to use the features and functions of Microsoft Project Professional 2016 to effectively manage your project plans. This course covers the skills a project manager needs in order to manage a project plan created with Microsoft Project 2016. From updated task progress, work, and costs to creating reports, and including advanced topics such as sharing resources and linking project plans, this course covers everything you need to know in order to manage your projects using Microsoft Project. | 2.25 | Intermediate |
| Mastering Microsoft Teams (2019) | Conversations, Channels, and Chatbots: Learn How To Get The Most from Microsofts New Communications Hub - Teams<br>The ability for teams to work together productively is perhaps the most important function in any business, and its the central focus of the new Microsoft Teams application.<br>From file sharing and co-editing to video calls, persistent chat, screen sharing, and more, learn how Microsoft Teams gives you the tools to stay in touch and get work done with your colleagues and partners.<br>Updated for 2019, this course includes new and updated material, including Shifts, Whiteboard, Praise, and Calls. We also discuss best practices for getting the most from your Microsoft Teams | 5 | Fundamental |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering Office 365 (2018) | Learn To Organize And Maintain Your Virtual Office Using Microsoft 365: The Powerful, Everything-You-Need-In-One-Easy-Bundle. Online Suite Office 365 is far more than classic Microsoft Office. Easy, collaborative tools like OneDrive, Teams, Planner, and Forms combine with traditional Microsoft apps to form a powerful productivity-boosting tool - and in this course we'll show you how to tap into all the power Office 365 has to offer! Updated for 2018 with all-new modules covering Microsoft Teams, Forms, To-Do, Stream, and Delve, with updates for Outlook online, navigation, Planner, and more - over 20 new and updated video lessons! | 11 | Intermediate |
| Mastering OneNote 2016 | Organize Your Work & Life Into Pages, Sections, and Notebooks! OneNote is a powerful tool both for managing your own notes or idea, and for collaborating with others. In this course trainer Kathy Jones will walk you through everything you need to know to be efficient with Microsofts incredibly popular note-taking platform. | 2.5 | Intermediate |
| Mastering Outlook 2016 | From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master. | 6.25 | Intermediate |
| Mastering Outlook 2016 Advanced | From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master. | 3 | Advanced |
| Mastering Outlook 2016 Basics | From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Is The First Step In Becoming An Outlook Master! | 3.25 | Fundamental |
| Mastering Outlook 2019 - Advanced | From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Teaches You to Make the Leap from Outlook User to Outlook Master! | 2 | Advanced |
| Mastering Outlook 2019 - Basics | From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be managed automatically or handled in a fraction of the timeif the Outlook user knew how to use the proper tools. This Course is the First Step to Becoming an Outlook Master! | 2.25 | Fundamental |
| Mastering PowerPoint 2016 | Making PowerPoint 2016 Easy & Effective . Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 8.25 | Intermediate |
| Mastering PowerPoint 2016 Advanced | Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 3.5 | Advanced |
| Mastering PowerPoint 2016 Basics | Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 4.75 | Intermediate |
| Mastering PowerPoint 2019 - Advanced | Learn advanced features to get the most out of PowerPoint 2019 or PowerPoint 365. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made—not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged. | 5 | Fundamental |
| Mastering PowerPoint 2019 - Basics | Making PowerPoint 2019 Easy & Effective Using PowerPoint effectively is a crucial skill for any business professional. Whether it's designing a presentation for a meeting, creating a handout, or even creating and exporting a custom video, PowerPoint 2019 is a tool that everyone should feel comfortable using. In this Bigger Brains course, our PowerPoint guru Kelly Vandever walks you through the basics of getting started with PowerPoint 2019. | 4.75 | Fundamental |
| Mastering QuickBooks Desktop 2018 | Learn The Useful And Powerful Features And Tools In QuickBooks Pro, Premier, and Enterprise. Do you feel like you don't have time to learn how to use some advanced tools and functions in QuickBooks because you have other important work to do - like gathering or inputting data into QuickBooks? This course is a great way to get up to speed on QuickBooks 2018, with many time-saving lessons that can change the way you think about QuickBooks. | 3 | Intermediate |
| Mastering QuickBooks Online 2018 | Become A QuickBooks Online Guru. QuickBooks Online brings traditional QuickBooks accounting to a cloud-based solution, and this course will show you everything you need to know to manage your customers, vendors, invoices, bills, checks, and online payments through QuickBooks Online. | 4.25 | Intermediate |
| Mastering Word 2016 | Learn Everything You Need to Know About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word, from the very basics to the most advanced features. | 9.75 | Advanced |
| Mastering Word 2016 Advanced | Learn More About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word. | 2.5 | Advanced |
| Mastering Word 2016, Basics | Learn The Basics Of Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley, we'll show you everything you need to know to start harnessing the power of Microsoft Word. | 3.6 | Fundamental |
| Mastering Word 2016, Intermediate | Learn More About Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley we'll show you everything you need to know to start harnessing the power of Microsoft Word. | 2.5 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mastering Word 2019 - Advanced | Learn the powerful advanced skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on intermediate skills in Word 2019 or Word 365 to create more professional and effective documents. | 2.5 | Fundamental |
| Mastering Word 2019 - Basics | Learn the Basics of Microsoft Word 2019Delivered in Easily Searchable, Highly Informative Content Lessons<br>Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer, Barbara, Evers, well show you everything you need to know to start harnessing the power of Microsoft Word. | 3.5 | Fundamental |
| Mastering Word 2019 - Intermediate | Learn intermediate skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on basic skills in Word 2019 or Word 365 to create more professional and effective documents. Topics covered include: Working with tables and charts including performing calculations and linking to data in an Excel workbook Creating text styles, list styles, and table styles Applying document themes Inserting building blocks (Quick Parts) Using and creating templates, Inserting section breaks, columns, and linked text boxes Creating an index Creating a table of contents Creating a table of figures Creating an outline Creating a master document Creating a mail merge | 2.75 | Intermediate |
| Material Handling Bucket Trucks | The purpose of this course is to teach the operation of material handling bucket trucks. The course focuses on the material handling features of the truck that distinguish it from other types of bucket trucks. It covers truck positioning, lift capacity, and some of the conductor lifting attachments that can be used to make a material handling bucket truck even more useful in the field. To gain maximum advantage from this course, participants should already be familiar with basic bucket trucks. At the conclusion of this course, participants should be able to identify the material handling features of a material handling bucket truck, including the winch, the jib, and conductor lifting attachments. They should also be able to explain lift capacity and demonstrate how to use a material handling bucket truck to lift equipment or conductors. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Material Handling of Bulk Liquids | Every day large quantities of liquid products are transported in and out of industrial facilities. These products are generally carried by tank trucks, tank cars, or barges. This course discusses how loading, unloading, and other transfers of bulk liquids must always be done safely and efficiently. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Material Handling: Tank Trucks | This course is designed to familiarize participants with basic concepts of material handling using tank trucks. After completing this course, participants should be able to describe characteristics of liquids that can affect liquid handling operations, and they should be able to describe precautions, procedures, and equipment associated with handling hazardous liquids. They should also be able to describe features of a typical tank truck and typical procedures for loading and unloading a tank truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Math: Basics | This course is designed to familiarize participants with basic mathematical applications that can be used on the job. After completing this course, participants should be able to interpret measurements that include fractions and decimal values, measurements in English and metric units, and perform mathematical applications involving fractions and decimals. They should also be able to calculate dimensions associated with rectangles, triangles, and circles. | 2 | Intermediate |
| Mathematics - Exponents | Exponents are used as shorthand for repeated multiplication of the same number and in scientific or engineering notation to simplify very large or small numbers. There are some simple rules that can help when working with exponents. This course will review squaring, cubing, exponent rules, scientific notation, and engineering notation. | 0.25 | Intermediate |
| Mathematics - Percentages and Fractions | This course discusses the definition of percent and fraction, how to change between numbers and percentages, how to properly write a fraction, as well as how to multiply, divide, add, and subtract fractions. | 0.25 | Intermediate |
| Matter States and Temperature | All matter on earth exists in one of three phases or states: solid, liquid, or gas. A substance's phase is determined by the speed of its molecular motion, often referred to as kinetic energy. Adding or removing heat energy from a substance can change it from one state to another. This course illustrates the types and properties of matter states, and concludes with a discussion of temperature scales and the different types of heat transfer. | 0.25 | Intermediate |
| Measurement - Dimensions | Distance measuring units include the U.S. standard, (inch, feet, yard), decimal-inch (tenth, hundredth, thousandth, ten-thousandth), or the metric (millimeter, centimeter, meter). Being able to measure distance or determining if something is square are integral parts of many projects. This can include weekend do-it-yourself jobs to major landscaping and construction projects. While measuring cannot be done without some variation, errors can be reduced by following basic principles covered in this course. | 0.25 | Intermediate |
| Measurement - Temperature, Force, and Fluid Properties | Monitoring and measurement are an essential part of almost every job. Proper measurement of physical properties requires the knowledge of specific terms, measuring units, and measuring devices. This course covers the terminology needed to accurately monitor and measure equipment, as well as the measuring units and techniques that apply to temperature, force, and fluids. It also discusses the challenges associated with measuring different physical properties. | 0.5 | Intermediate |
| Mechanical Maintenance: Basic Terms of Maintenance | This interactive online course teaches you about the basic terms commonly used in industry. You will learn definitions for concepts, including measurements of energy, temperature, and loading limits. You will also learn about common industrial processes, and examine some of the components used in these processes. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include:<br>Mechanical Maintenance: Basic Terms of Maintenance<br>Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers<br>Mechanical Maintenance: Maintaining V-Belts<br>Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain<br>Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts<br>Mechanical Maintenance: Couplings<br>Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mechanical Maintenance: Couplings | This interactive online course addresses how different couplings attach to shafts. You will learn factors that can increase wear and the lifespan of a coupling, and the applications of different coupling types. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | This interactive online course addresses how breaks and clutches work, conditions that can cause breaks and clutches to fail, and brake and clutch maintenance to better prevent premature wear. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers | When the normal operating speed of a motor is different from that required for an application, speed reducers, frequently called gear boxes or gear reducers, are often used to lower the speed. This interactive online course will teach you about the basic parts that all reducers have in common. You will learn common problems that go wrong with reducers and how to spot them early, before they become serious. You will also learn how to maximize the efficiency of reducers you work with and how to get them running again when things go wrong. You will also be taught what to look for during an overhaul. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts | Transmission drives rely on belts to transfer power. No belt lasts forever, but by following the guidelines discussed in this course, unexpected equipment downtime can be minimized. This interactive online course will teach you about three types of belt driven power transmission drives, flat belts, V-belts and timing belts. You will learn how each belt works, how they're constructed, and taught the importance of proper installation and maintenance. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain | This interactive online course teaches you about two kinds of power transmission drives, those using roller chain and those using silent chain. You will learn about how they are constructed and how they work. You will also learn about some of the most common reasons why they fail. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include:<br>Mechanical Maintenance: Basic Terms of Maintenance<br>Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers<br>Mechanical Maintenance: Maintaining V-Belts<br>Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain<br>Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts<br>Mechanical Maintenance: Couplings<br>Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Maintenance: Maintaining V-Belts | Do you know the best ways to troubleshoot and maintain V-belts? This interactive online course teaches you about the basics of maintaining V-belts. You will learn how to describe V-belt types, explain proper V-belt installation, identify problems with V-belts, and discuss V-belt replacement. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include:<br>Mechanical Maintenance: Basic Terms of Maintenance<br>Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers<br>Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain<br>Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts<br>Mechanical Maintenance: Couplings<br>Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches | 0.5 | Intermediate |
| Mechanical Seals | The purpose of this course is to provide participants with a general understanding of mechanical seals and mechanical seal installation. At the completion of this course, participants will be able to describe the components and operation of the different types of mechanical seals as well as procedures for seal removal and installation. | 1 | Intermediate |
| Meeting Customer Expectations | Meeting the needs and expectations of the customer is important in any successful product design. Waste, products with inconsistent-quality, and even a poor company reputation can lead to not meeting customer expectations. This course focuses on ways to discover the needs and expectations of the customer, the different categories of product features, and the importance of following established production procedures. | 0.25 | Intermediate |
| Meetings That Get Results | Frustrated with boring meetings that waste time? Never fear! This pivotal course will teach you how to shift from boring, ineffective meetings, to strategic meetings that get results! Through application exercises and a rich multimedia process, learn the specific components that make meetings worth the time and effort of everyone involved. But what if you are not in charge? Not a problem! This course will also take you through the steps and options to make meetings effective even when you are not the one conducting! | 0.5 | Intermediate |
| Metal Fabrication | This course begins by illustrating how to bend, shear, and saw metal using various machines. It then illustrates how to cut metal using a gas torch. The course concludes with a discussion of abrasives and the best practices while using abrasives. | 0.25 | Intermediate |
| Metals - Identifying Steel and Iron | This course covers how to identify steel and iron using specific tests including surface appearance, spark test, oxyacetylene torch test, magnetic test, and chip test. This course then discusses the advantages of iron, what steel is, and the different types of steels that are commonly used. | 0.25 | Intermediate |
| Metals - Physical Properties and Types | This module will cover metal types, alloys, impurities, hardness, toughness, tensile strength, ductility, malleability, and elasticity. It will also discuss the difference between ferrous and non-ferrous metals. | 0.25 | Intermediate |
| Microgrid Essentials | Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges. | 1 | Fundamental |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Microgrids and the City | Is your municipality prepared for a loss of power for days, or even weeks? The use of backup generators is really a short-term solution that only addresses one aspect of loss of power - what about the rest? Wireless communications? Clean water? Gasoline/ diesel? Medicines? A holistic approach to energy from up front and ongoing efficiency, minimizing demand, and designing, building, and operating long-term outage solutions is within the grasp of all municipalities. This presentation will examine energy resiliency resources and provide two case-study examples of the application of those resources. | 1 | Intermediate |
| Microsoft 365 Admin Tips and Tricks | Learn the secrets to keep your Microsoft 365 tenant safe and secure.<br>As an administrator, you know the importance of streamlining user, device, and configuration management, while ensuring a safe and secure experience for both your users and your company. In this course, Amy Babinchak, Microsoft 365 MVP, shows you how she administers and secures Microsoft 365 tenants for her company and her clients. Learn how to access the various Microsoft 365 admin centers and where to perform necessary tasks, while also getting tips and tricks from Amy based on her years of experience. By the end of this course, you'll be ready to get started with, or improve, your Microsoft 365 administration. | 2 | Fundamental |
| Microsoft Forms Essentials | Learn How Microsoft Forms Makes It Easy to Collect Datavia Forms or Quizzes<br>Easily create online forms, surveys, and quizzes, and view the results as they come in with Microsoft Forms!<br>In this course well take a close look at all the features and benefits of this new Office 365 tool! | 1.33 | Fundamental |
| Microsoft Lync Essentials | Can You Hear Me Now? The Essential Guide To Communication & Collaboration With Microsoft Lync<br>Collaboration is the art of making 1 + 1 equal more than 2 - coworkers sharing ideas, working through challenges, and congratulating each other on successes is an important part of any successful business. How do you do that with today's distributed workforce? Microsoft Lync to the rescue!<br>This Course Will Teach You Everything You Need To Know To Chat, Call, Present, and Share With Microsoft Lync. | 1.25 | Fundamental |
| Microsoft Project 2013 Essentials Training | Microsoft Project 2013 is a desktop application used primarily by Project Managers to create and manage large or complex programs or projects. The objective of Microsoft Project is to manage your project easier. In this Essentials training course, you will be introduced to the user interface. You will learn how to create, execute, and close projects. This course will show you how to plan and create tasks as well as how to create resources and assign them to those tasks. This interactive online course wraps up with tips and tricks you can use to make Microsoft Project more efficient for you. | 2 | Intermediate |
| Microsoft Project 2013 Intermediate Training | | 2 | Intermediate |
| Microsoft Sway Essentials | Learn The Easy Way To Create Compelling, Modern Presentations With Microsoft Sway, For everyone who ever struggled to create an engaging presentation with PowerPoint, rejoice! Microsoft Sway is a unique and refreshing new way to create visually appealing, interactive presentations, and this course will walk you through getting started with your first Sway. | 1.25 | Fundamental |
| Microsoft Teams Essentials | Learn To Collaborate and Communicate with Microsoft Teams. Many businesses are using Microsoft Teams to facilitate communication, collaboration, file sharing, and more. This mini-course covers everything you need to know in order to start using Microsoft Teams in just the first two modules (20 minutes). | 1 | Fundamental |
| Microsoft To Do Essentials | Organize Your Day Track Your To-Dos and Focus on Whats Important . The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks. | 0.5 | Fundamental |
| Mobile Hydraulic Systems | The purpose of this course is to teach basic operation and maintenance of mobile hydraulic systems used on line trucks. The course presents the basic principles of hydraulic power and explains how these principles are used to produce motion. Inspection and routine maintenance of mobile hydraulic systems are also discussed. At the conclusion of this course, participants should have a basic understanding of how mobile hydraulic systems operate. They should be able to identify components of a mobile hydraulic system and explain how they function. They should also be able to inspect a mobile hydraulic system and perform minor maintenance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Modern React with Redux | This is the tutorial you've been looking for to master modern web development with React. Redux? We got it. ES6/Babel? Covered. Webpack? Included! Mastering React and Redux can get you a position in web development or help you build that personal project you've been dreaming of. It's a skill that will put you more in demand in the modern web development industry, especially with the release of Redux and ReactNative. This course will get you up and running quickly, and teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux. We'll start by mastering the fundamentals of React, including JSX, props', state', and eventing. Source code is provided for each lecture, so you will always stay up-to-date with the course pacing. After an introduction to React, we'll dive right into Redux, covering topics like reducers, actions, and the state tree. If you are new to React and Redux, or if you've been working to learn it but sometimes feel like you still don't quite 'get it', this is the React course for you! To learn React you have to understand it. Learn how to use React's custom markup language, JSX, to clean up your Javascript code. Master the process of breaking down a complex component into many smaller, interchangeable components. Grasp the difference between props' and state' and when to use each. Develop complex applications that scale in complexity by mastering Redux. Dive deeper into Redux by using middlewares. No fancy terms required! I've built the course that I would have wanted to take when I was learning React and Redux. A course that explains the concepts and how they're implemented in the best order for you to learn and deeply understand them. | 10.5 | Intermediate |
| Mold Basics | Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. | 1 | Fundamental |
| Mold Remediation | Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. | 1 | Fundamental |
| Mold Remediation Equipment | The key to efficiently and effectively completing remediation projects is knowing what equipment to use for the task, how to use it, and take care of it. This course will allow you to quickly learn from our practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list. | 1 | Fundamental |
| Mold Safety and Health | Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Mold Sampling | This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. | 1 | Fundamental |
| Montana 4 Hour 2017 NEC Changes: Program 1 | This 4-hour program is formatted in 3 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) 2017 NEC Changes: General Requirements (RV-11105) 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Lesson 1: The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: The second lesson covers Chapter 1 of the 2017 National Electrical Code (NEC)and contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Lesson 3: In the last lesson chapter 2 is discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercia | 4 | Intermediate |
| Montana 4 Hour 2017 NEC Changes: Program 2 | This 4-hour program is presented in 4 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) 2017 NEC Changes: Enclosures and Boxes (RV-11108) 2017 NEC Changes: Hazardous Locations (RV-11112) 2017 NEC Changes: Special Occupancies (RV-11113) Lesson 1: The first lesson covers Article 240 and 250 of the National Electrical Code (NEC) and the requirements for overcurrent protection and for grounding and bonding. Changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: Chapter 3 of the NEC contains requirements for wiring methods, enclosures and boxes. Notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Lesson 3: Chapter 5 of the 2017 National Electrical Code (NEC) also contains requirements for special occupancies. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements <p style=margin-bottom: 0.0001pt | 4 | Intermediate |
| Montana Electrician 4 Hour Industry Related Program 1 | This 4-hour program is presented in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Wecome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'l | 4 | Intermediate |
| More Than Mold - Health Effects Associated With Mold and Water Damage | Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. | 3 | Fundamental |
| Motivating Employees | How do you get your employees and team members motivated and actively engaged? According to the dictionary, you simply provide them with a need, desire, or reason to make a particular choice - or behave in a specific manner. Sounds simple, right? Unfortunately, motivating employees is much more than just offering the right prizes, bonuses, or incentives. To understand motivation, we'll first focus on making sure the foundational needs of your employees are being met, and then, look at what additional needs need to be taken care of to help them thrive. Finally, you'll learn how to assess the motivation level of your employees to better determine what types of programs, incentives, or changes should be put in place to effectively increase motivation within your organization. | 0.5 | Intermediate |
| Motivational Ethics | **This course does not provide CEU or PDH credit** A lot of good people find themselves getting fired, or even getting arrested, and have to ask, How did I end up here? You likely didn't wake up today and make a conscious decision to NOT steal a car or rob a bank. However, you already have made thousands of choices, and those choices will have an inevitable impact on your life, and the lives of others. This course shows how to recognize and understand HOW to be trustworthy, reliable, and honest in your professional and personal life. What determines your future has everything to do with the choices you make. Understanding ethics can do more than help you decipher what is right or wrong. If you understand and apply the laws of ethics, then you can consciously make decisions that will inevitably lead you to become very successful. | 1.75 | Fundamental |
| Motor Branch Circuit Protection | A motor branch circuit, or motor branch, is a circuit that provides power and protection for a motor. According to the National Electrical Code® (NEC®), a motor branch must have a means to disconnect the entire branch from its power supply and a means to protect the branch components from the potentially damaging effects of excessive current. How a motor branch functions and how the necessary protection is provided are the subjects of this course. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Motor Control Circuits and Functions | A small motor can be started by simply plugging it into an electrical receptacle or by using a switch or circuit breaker. A large motor requires a specialized switching unit called a motor starter or motor contactor. Once they are running, there are many other aspects to safe and efficient motor operation. Motor control refers to manual or automatic methods for starting, stopping, controlling speed, reversing, and protecting a motor. These controls are achieved using a variety of circuits, connections and sensors. | 0.5 | Intermediate |
| Motor Overload Protection | Large alternating current motors are vital to modern life and industry. While motors are relatively simple devices, they can be installed or operated incorrectly or develop operational problems. For protection of the motor and for safety reasons, electrical motors require protective devices on their power supply systems. Circuit breakers and fuses are used to provide protection from very high-current short circuits and ground faults. Overload devices are used to protect from longer period, moderate overcurrent events. This module will focus primarily on the role and function of the overload protection devices. | 0.25 | Intermediate |
| Motor Starters | When a relay is used to switch a large amount of electrical power through its contacts, it is designated by a special name: contactor or starter. This course covers contactors, incoming and auxiliary contacts, overload heaters, starter construction, starter operation, using heater elements in troubleshooting, and typical starter configurations. | 0.25 | Intermediate |
| Multigeneration Management: 01-Workforce Generations | At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace. | 1 | Intermediate |
| Multigeneration Management: 02-Leading Silents and Boomers | For todays managers, it is essential to understand the unique needs and work habits of the companies elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to Americas workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generation series, which contains courses dedicated to understanding each generations different behaviors, attitudes, and priorities. | 1.5 | Intermediate |
| Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next) | Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrows experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series. | 1.25 | Intermediate |
| Multigeneration Management: 04-Cross-Generational Teams | Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the fourth course. | 1 | Intermediate |
| Multigeneration Management: 05-Developing Generations | When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the final course. | 1 | Intermediate |
| Multiple Street Lighting Systems | The purpose of this course is to teach the basic principles of operation and maintenance of a multiple street lighting system. The course presents the fundamental theory of operation and identifies the equipment typically found in a multiple street lighting system. Approaches to detecting and correcting common problems are also shown. At the conclusion of this course, participants should have a basic understanding of how multiple street lighting systems work, what equipment they use, and how they are controlled. Participants should be able to detect and correct common problems in a multiple street lighting system. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Multistage Centrifugal Pump Maintenance | Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A singlestage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered. | 1 | Intermediate |
| Multistage Centrifugal Pumps | A centrifugal pump converts external rotational mechanical energy into kinetic energy within a liquid. In the most common design of the centrifugal pump, a single impeller spins within a case called a volute. There is an economical limit to the pressure increase that can be achieved with a single impeller. Placing multiple impeller-and-volute stages in a case creates a single centrifugal pump unit capable of continuously delivering much higher discharge pressures than can be created by a single stage pump. This type of pump is called a multistage centrifugal pump. This course discusses some of the mechanical considerations and different designs of multistage centrifugal pumps. | 0.25 | Intermediate |
| Multi-Stage Turbines | The steam turbine generators used today produce approximately 85% of the electricity in the United States. In a typical turbine, steam flows in at a speed near 100 miles per hour and at temperatures from 400 to 950 degrees Fahrenheit. This course describes the differences between an Impulse and Reaction turbine, why steam turbines are multi-staged, the different types of turbine blade compounding arrangements, or stages and how they relate to turbine efficiency. | 0.25 | Intermediate |
| Natural Gas Systems - Sizing and Design Consideration | What is that yellow pipe for? Do you know how to size a natural gas system? Natural gas piping systems are in use in virtually every commercial building. Natural gas is used for comfort heating, cooking, laundry, water heaters, fireplaces, even decorative lighting and fire pits. The proper design and installation of natural gas systems is essential for not only the efficient operation of appliances but also the safety and health of building occupants. This interactive online course will take an in-depth look at a number of considerations that must be addressed before design can begin including:<br>Knowing the applicable codes,Knowing the requirements of the natural gas utility supplier,Venting requirements,Pipe identification and labeling requirements,Pipe support requirements,Gas meter clearances for windows, air intakes and electrical equipment, Sizing methods to use, andSelection of piping material. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Negativity in the Workplace | In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome. | 4 | Intermediate |
| Networks Introduction | In all control systems, inputs pass information to the decision-making controller, which then passes information to output devices. The manner in which this information-passing process works varies with the type and complexity of the control system. This course will provide an overview of some different types of control systems, as well as some basic concepts that apply to control system networks. | 1 | Intermediate |
| Networks: Fiber Optic Systems | This course is designed to familiarize participants with the basic operating principles of fiber optic systems and some of the basic installation and testing methods. After completing this course, participants should be able to describe characteristics of glass fibers and describe the function and types of fiber optic connectors. They should also be able to describe basic procedures for installing and testing fiber optics. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Networks: Setting Up and Troubleshooting | This course is designed to familiarize participants with basic concepts that apply to setting up and troubleshooting control networks. After completing this course, participants should be able to describe different types of cables and connectors that are used to link together devices in control networks. They should also be able to describe basic procedures for installing, testing, and troubleshooting control networks. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| New Employee Safety Orientation | All occupations, even ones that are not typically assigned to dangerous tasks, have certain safety hazards associated with them. For some occupations, the hazards are obvious. For other occupations, however, the hazards may be less apparent. It would be difficult to fully discuss all safety rules and regulations to avoid every danger you could potentially encounter in your job. So, instead, this online interactive course provides a basic overview of safety issues to help improve your safety awareness. These safety issues include safe work habits, which should be part of your daily routine; personal protective equipment, which may be required to maintain your health and safety on the job; hazard communication, which provides vital information about chemicals and other hazards that affect working conditions; and fire safety, which is a critical concern in any workplace. | 0.5 | Intermediate |
| NFPA 70E® - 2018 Updates | Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance. | 1 | Intermediate |
| Nitrogen Safety Awareness | Nitrogen is used daily in the workplace without incident. However, serious incidents including fatalities can occur when nitrogen is present in a work environment, such as a confined space, and employees enter without awareness of the potential hazard. This course will teach you how to recognize hazards and take corrective action to protect yourself and others. | 1 | Intermediate |
| Non-conductive Tools | Electricity can be dangerous to human beings. The use of non-conductive tools is one of many techniques used to reduce the chance of injury when working with electricity. Electrical conductivity is an intrinsic property of a material which quantifies the ability of a material to allow or oppose the flow of electrons produced by a voltage difference across the material. Non-conductive tools help protect an electrical worker by preventing the flow of electricity from a live source to the person holding the tool. | 0.25 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements | This 2 hour program is presented in two lessons:Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 2 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies | This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. | 2 | Intermediate |
| North Carolina 2 Hour 2017 NEC Changes: Overcurrent Protection, Grounding & Bonding, and Enclosure Boxes | This interactive online course is presented in two lessons:Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings | 2 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| North Carolina Electrician 2020 NEC Changes: 2 Hour Program #1 | This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units. | 2 | Intermediate |
| North Carolina Electrician 2020 NEC Changes: 2 Hour Program #2 | This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 2 | Intermediate |
| North Carolina Electrician 2020 NEC Changes: 2 Hour Program #3 | This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 2 | Intermediate |
| Occupational Safety Training: Introduction to OSHA | Many of the health and safety programs and procedures in this Health and Safety Guide are derived from federal Occupational Safety and Health Administration (OSHA) regulations. This course provides you with some background information about OSHA and OSHA standards, inspections, citations, and penalties. At the end of this course, you will be able to distinguish between the role of OSHA and the role of the office of Environmental Health and Safety (EHS). Learn more about the role of OSHA in establishing a safe and secure work environment. | 0.5 | Intermediate |
| Office 365 Groups Essentials | Learn How Office 365s Powerful New Groups Feature Help Your Team Talk, Plan, And Collaborate<br>Microsoft Office has no shortage of ways for groups to work together. From simple spreadsheet sharing to social media tools like Yammer and Delve and collaboration platforms like SharePoint, Microsoft has provided plenty of tools to help people work as a team. | 1 | Fundamental |
| Office 365 Planner Essentials | Learn How to use Office 365 Planner to Organize Your Team in a Powerfully Simple Visual Format. The Planner tool in Office 365 is a powerful team management tool, providing features comparable to standalone project management apps but without the high price tag - in fact it's included free with most Office 365 Business plans. | 0.75 | Fundamental |
| Ohm's Law | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that is commonly referred to as Ohm's Law. Ohm's Law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. This course describes Ohm's law; the units in which power is measured; and how to solve for power, voltage, current, and resistance using Ohm's Law. | 1 | Intermediate |
| Oil Spill Responses in Facilities | The environment and public health and safety are affected with every oil spill and facilities should work to mitigate their risk with a goal of zero oil discharge. By the end of this course, you will learn about the tools facilities can use to prevent, contain, control and if necessary cleanup after an oil spill. | 1 | Intermediate |
| OJT Mentor | On-the-job training programs can be very productive when properly structured. This course provides tips to help make people more effective OJT mentors, including explaining the structure of an OJT team, providing four questions to ask before training begins, stressing the importance of a training plan, giving tips for being a good mentor, explaining how to evaluate the OJT mentor and program, and more. | 0.5 | Intermediate |
| Oklahoma 6 Hour 2017 NEC Changes Program | This program is intended to familiarize the reader with the major changes contained in the 2017 NEC, and is suitable for electricians, and electrical engineers. The course addresses Code revisions that are listed in the lessons below. NOTE: This course is formatted in 5 lessons with the exam given at the end of each lesson. Each lesson must be passed with a score of 70% or higher before being allowed to proceed to the next lesson. The lessons are listed below. Lesson 1: 2017 NEC Changes A New Process and Five New Articles (RV-11104) The 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. Lesson 3: 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Lesson 4: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Lesson 5: 2017 NEC Changes: Enclosure Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. | 6 | Intermediate |
| OneDrive Essentials (2016) | OneDrive and OneDrive for Business Can Radically Improve Your Productivity Well Show You How! Both OneDrive (the free, personal version) and OneDrive for Business (the corporate version included in most Office 365 plans) have the same mission: To let you easily access your documents and files from any device, anytime, and securely share them with others. | 1.5 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| OneNote for Windows 10 Essentials | The Structure You Need with the Flexibility You Want. OneNote is one of Microsofts unsung heroes: a digital notebook that allows you to organize your notes, meeting minutes, project documents, and moreall in one place. Its almost like having an old-school, three-subject binderexcept with unlimited sections and your notebook wont weigh down your bag like it might have in school. Plus, no one will have to copy your notes, because you can share them digitally to collaborate with others.<br>Are you ready to get organized? Note: While many of the features are the same in other versions, this course is specific to the Windows 10 version of Microsoft OneNote. | 1.25 | Fundamental |
| Online Marketing 101 | This Course Is A Must-Take For Anyone Who Wants To Drive In More Profits With From Your Online Business Generators<br>You've heard of businesses making it big online, and others not making it at all and the difference is whether or not they can master online marketing techniques. | 1.5 | Fundamental |
| On-the-Job-Training: Implementation and Evaluation | This course is designed to familiarize participants with basic concepts associated with on-the-job (OJT) training of plant operators. After completing this course, participants should be able to identify qualities that an effective OJT instructor should have and describe considerations associated with scheduling, planning for, and conducting on-the-job training. They should also be able to describe how the participant, the instructor, and the overall OJT program can be evaluated. | 2 | Intermediate |
| On-the-Job-Training: Preparation | This course is designed to familiarize participants with basic concepts associated with on-the-job training (OJT) of plant operators. After completing this course, participants should be able to compare OJT and classroom training and describe the basic steps in a formalized OJT program. They should also be able to explain how to determine specific training needs for a participant, and they should be able to describe training materials that are commonly used for OJT. | 2 | Intermediate |
| Operations: Basic Principles | In this course, you will learn how a plant responds to load demand changes and what the basic responsibilities of an operator are during a load change. You will describe the basic function of bearings, identify sliding surface bearings and roller contact bearings, and know some of the operator responsibilities for checking bearings and maintaining lubrication. | 1 | Intermediate |
| Operator Basic Care | Operator basic care (also known as operator essential care, operator driven reliability, asset basic care, or autonomous maintenance) is an equipment reliability program. Although the name and program details can vary, the general concept is to involve operators in the maintenance of their equipment. By engaging all employees, a consistent product output and quality can be maintained throughout the expected lifespan of a machine. The theory is that maintenance should be driven by operators because they spend the most time with the equipment, so they know the most about the current machine condition. Operator basic care provides a foundation for a successful predictive maintenance program. This course covers the basic concepts and best practices of Operator Basic Care programs. | 0.5 | Intermediate |
| Operator Responsibilities: Advanced Operator Responsibilities | This training unit is designed as a refresher for experienced operators and a look at the operator's changing role. The specific areas covered include operator responsibilities for safety, data collection, production, and interpersonal communications. | 1 | Intermediate |
| Operator Responsibilities: Basic Operator Responsibilities | Modern industrial facilities include complex groups of systems serving a multitude of functions. These systems, which consist of equipment, piping runs, and electrical cables, all work together to process raw materials into final products that can be supplied to customers. Many groups of people are involved in the operation of an industrial facility. This course focuses on the basic responsibilities of the people who operate process systems. | 1 | Intermediate |
| Operator Responsibilities: Communication | This course is designed to familiarize participants with basic operator responsibilities associated with interpersonal relationships and data collection and use. After completing this course, participants should be able to describe the components of a basic communication model and describe an operator's responsibilities for communicating with other plant personnel, customers, and members of the surrounding community. They should also be able to describe operator responsibilities associated with collecting and using written data and with participating in effective shift changes. | 2 | Intermediate |
| Operator Responsibilities: Introduction | How much do you know about how plants are operated? In this online interactive course we will cover how in a plant, many different systems work together to turn raw materials into finished products. Many different people work together to make sure the systems work the way they should. Some of these people are the plant operators who are responsible for running the process systems. | 0.5 | Intermediate |
| Operator Responsibilities: Plant Production and Safety | The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with. | 0.5 | Intermediate |
| Operator Responsibilities: Trends, Maintenance, and Emergencies | This course is designed to familiarize participants with basic operator responsibilities associated with trend analysis, equipment maintenance, and emergency situations. After completing this course, participants should be able to describe ways to detect and analyze trends, explain how work orders are used, and describe how to perform some minor maintenance tasks. They should also be able to explain how operators can prepare for emergency situations and describe operator responsibilities during emergencies. | 2 | Intermediate |
| Optical Analysis | In this course, the basic principles and operation of optical analytical instruments are discussed. This course looks at the basic principles, operation, and use of colorimeters, polarimeters, turbidimeters, nephelometers, and refractometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Oregon 2017 NEC Changes: A New Process and 5 New Articles and General Requirements | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104)The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105)Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. | 2 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Oregon 2017 NEC Changes: Hazardous Locations and Special Occupancies | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112)Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113)The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. | 2 | Intermediate |
| Oregon 2017 NEC Changes:Overcurrent Protection, Grounding & Bonding, and Enclosure Boxes | This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107)Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108)Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings | 2 | Intermediate |
| Oregon Electrician 2017 NEC Changes: Appliances and Equipment - Special Equipment | This two-part course discusses the 2017 NEC changes regarding appliances and equipment as well as special equipment. Part I 2017 NEC Changes: Appliances and Equipment Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II 2017 NEC Changes: Special Equipment Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. | 2 | Fundamental |
| Oregon Electrician 2017 NEC Changes: Conductors and Wiring Methods - Receptacles and Switches | This two-part course discusses the 2017 NEC changes regarding conductors and wiring methods as well as receptacles and switches.Part I 2017 NEC Changes: Conductors and Wiring Methods Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part II 2017 NEC Changes: Receptacles and Switches (RV-11110) How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. | 2 | Fundamental |
| Oregon Electrician 2020 NEC Changes: 2 Hour Program #2 | This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 2 | Intermediate |
| Oregon Electrician 2020 NEC Changes: 2 Hour Program #3 | This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 2 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| OSHA 10 Hour Construction Program | The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards.Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training.<br>The specific Modules covered in this course are:<br>Introduction to OSHA<br>Electrical Safety<br>Fall Protection<br>Struck-By & Caught-Between Accidents<br>Personal Protective Equipment (PPE)<br>Scaffolds<br>Cranes<br>Hand & Power Tools<br>Excavations<br>Materials Storage<br>Demolition<br>Hazards in Construction | 10 | Fundamental |
| OSHA Pressure Vessel Chemical Cracking | A pressure vessel is a storage tank or vessel that has been designed to operate at pressures above 15 p.s.i.g. Recent inspections of pressure vessels have shown that there are a considerable number of cracked and damaged vessels in workplaces. Cracked and damaged vessels can result in leakage or rupture failures. Potential health and safety hazards of leaking vessels include poisonings, suffocations, fires, and explosion hazards. Rupture failures can be much more catastrophic and can cause considerable damage to life and property. The safe design, installation, operation, and maintenance of pressure vessels in accordance with the appropriate codes and standards are essential to worker safety and health.<br>This 1-hour interactive online course is based on Section IV: Chapter 3 of the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) Technical Manual, Pressure Vessel Guidelines. This course focuses on pressure vessels and low pressure storage tanks used in process, pulp and paper, petroleum refining, and petrochemical industries for water treatment systems of boilers and steam generation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| OSHA Safety: Drilling | The oil and gas industry employs hundreds of thousands of people and is a vital component of the national economy. Worker safety and health are important to this industry and it is essential to be aware of potential hazards present in the workplace. This 4-hour interactive online course discusses OSHA standards and directives that dictate OSHA safety procedures for oil and gas well drilling. This course also identifies common hazards and possible solutions to reduce incidents that could lead to injuries or fatalities. | 4 | Fundamental |
| OSHA Safety: Introduction to Powered Industrial Trucks | Approximately 100 fatalities and 36,340 serious injuries in general industry and construction occur annually due to powered industrial truck related accidents. With such staggering statistics, an employer is morally and legally obligated to take every safety precaution possible when dealing with powered industrial trucks. This 1-hour interactive online course focuses not only on the new OSHA standards for properly training employees to operate industrial trucks, but also the rules and regulations that must be followed to safely operate an array of work-oriented vehicles. | 1 | Fundamental |
| OSHA Underground Construction | This interactive online course is a brief review of Government Regulations regarding Underground Construction, Caissons, Cofferdams and Compressed Air as posted under Subpart S, Part 1926, from OSHA's Safety and Health Regulations for Construction. The course is broken into sections:<br>Underground Construction Part I<br>Underground Construction Part II<br>Caissons & Cofferdams<br>Compressed Air<br>After reading over the OSHA material, a brief multiple choice quiz follows each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 4 | Intermediate |
| Outlook 2013: 01-Getting Started in Outlook 2013 | Outlook is a program that enables you to track all your communication with contacts, meetings or appointments, notes, and to-do lists in one place. Microsoft has offered this resourceful program for years, but released this version update to provide users with a sleeker and more efficient tool. Explore whats new in Outlook 2013 as you go over the basics. You'll explore the interface, discover customization options for the layout of Outlook as well as customization options within your messages. Communication is key to success. Therefore, you'll spend a portion of your time learning to work efficiently within the Mail section of Outlook. Overall, the topics covered will aid you in your preparations for Microsofts Outlook Exam 77-423. | 1.5 | Intermediate |
| Outlook 2013: 02-Message and Contact Management in Outlook 2013 | Outlook is your go-to resource for all tasks and projects associated with communication. Part of communication is knowing the appropriate channel to reach a contact. As a result, you must understand how to use the People tab in Outlook for your benefit. Alongside the discussion on Contacts, you will also spend time on organizing your mail as you look over folder and configuration options. Prepare for your Microsoft Outlook Exam 77-423 by learning the tools Outlook provides for mail organization, the various save options, and contact categorization. Explore all of Outlook 2013s available features and tools for email and contact customizations. | 1.5 | Intermediate |
| Outlook 2013: 03-Time and Task Management in Outlook 2013 | Through these discussions, you are preparing for Microsofts Outlook Exam 77-423. To be successful in this exam, as well as in the professional world, it is crucial that you know how to properly manage your time. Overall, the topics covered will aid in learning how to use Outlook tools to help with time management. The tools emphasized are those associated with the calendar, notes, journal, and tasks tab. In the end, you'll be able to share calendars, work with the scheduling assistant, forward calendar items, share meeting notes, and update to-do lists. | 1.25 | Intermediate |
| Outlook Online Essentials (2018) | Communicate Anywhere With Outlook Online, the Web-Based App For Managing Emails, Calendars, and People<br>Sometimes you need a quick way to get to your stuff no matter where you are. Outlook Online, also called the Outlook Web App (OWA), is a convenient and powerful way to access your email, calendar, and contacts (People) from any web browser. Throughout this course, you will learn the main features and benefits of using Outlook Online from Office 365. The interface is very similar if you are using Outlook Online from your company as well. | 2.5 | Fundamental |
| Overall Equipment Effectiveness | Overall Equipment Effectiveness (OEE) is a manufacturing performance metric that is used to identify the sources of lost production and measure improvement efforts. In this course we will discuss the purpose of OEE and how it is calculated. We will define availability, performance, and quality factors. We will also describe how to implement and analyze OEE and define the Six Big Losses, as well as how to reduce them. | 0.75 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Overcurrent Protection I - Short Circuit Calculations | This 3-hour interactive online course reviews the principles of electric systems during faulted conditions and how short circuit currents are calculated in both three-phase and single-phase systems. Since short circuits have such damaging impacts on an electric system, the magnitude of the expected faults currents and their impact on the components in the circuit must be understood. The simplified analytical procedures presented in this course will allow the user to quickly determine the expected level of fault currents in an electric system. These procedures are generally considered adequate for most applications of 600-volts or less. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Fundamental |
| Overcurrent Protection II - Coordination | This 3-hour interactive online course reviews the principles of operation and coordination of electric system equipment during faulted conditions. Since short circuits have such damaging impacts on electrical equipment, their impact on the components in the circuit must be understood. The purpose of this course is to explain how the various protective devices react to faulted conditions and how to select the appropriate devices to ensure proper coordination. The theory of operation of protective devices is reviewed as well as how to properly coordinate the devices for selective coordination. Various electrical devices are reviewed including fuses, current limiting fuses, circuit breakers, transformers, conductors, busways, and motor controllers. This course reviews the principles of electrical equipment operation and coordination on an electric system during faulted conditions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Advanced |
| Overhead Troubleshooting, Part 1 | Overhead Troubleshooting, Part 1 is designed to introduce participants to some basic troubleshooting steps that can be applied to any type of overhead electrical system problem and to demonstrate how those steps can be applied to several different troubleshooting situations. Although Overhead Troubleshooting. Course, Part 1 is an introductory course; it is recommended that participants have a general understanding of overhead system components and operation. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to identify some basic troubleshooting steps that can be applied to any type of overhead system problem; identify other considerations that should be kept in mind during any kind of troubleshooting activity; and describe how some basic troubleshooting steps can be applied to several different troubleshooting situations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Overhead Troubleshooting, Part 2 - Emergency Conditions | Overhead Troubleshooting, Part 2 is designed to familiarize participants with some of the basic principles associated with troubleshooting overhead electrical systems during emergency conditions. Particular attention is paid to the differences between troubleshooting during emergency conditions and troubleshooting during normal conditions, and to the manner in which communications are handled. T o gain maximum advantage from this course, participants should have a basic understanding of the components and operation of an overhead electrical system, and they should have completed the Overhead Troubleshooting, Part 1 course. Participants without this prior training may require additional explanation or instruction. At the conclusion of this course, participants should be able to identify basic differences between troubleshooting under emergency conditions and troubleshooting under normal conditions, and describe basic preparations and safety precautions associated with troubleshooting under emergency conditions. They should also be able to explain why a communications center is needed during emergency conditions and how communications to and from the communications center are handled. The participants should also be able to describe how repairs to problems encountered during troubleshooting are prioritized during emergency situations. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Oxyacetylene Welding Equipment and Safety | Oxyacetylene welding, also known as gas welding, is a process which relies on the combustion of oxygen and acetylene to produce a very hot flame. When these gases are mixed together in the correct proportions, a flame is produced with a temperature that is sufficient to melt steel. This course will cover the basics of oxyacetylene welding and some best practices that should be followed in order to be safe on the job. We will go over how oxygen and acetylene are used in gas welding, the equipment that makes up a gas welding rig, and the PPE required to maintain a safe welding environment. | 0.5 | Intermediate |
| Package: The Ultimate Project Manager Series | This package includes all 26 hours of the Ultimate Project Manager series. | 26 | Intermediate |
| Pad-Mounted Transformers and Switchgear | The purpose of this course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Painting and Coating Basics | Surfaces are often painted or coated to protect them against corrosion and degradation. Metal corrosion is of particular concern because it can cause equipment failures, which can lead to safety problems, environmental issues, lost production, and increased costs. Wood surfaces are also often painted or coated to provide protection from insects, fungi, and weathering. Paints and coatings for use on masonry surfaces must be formulated for the high pH levels that are often present. Prior to painting or coating, surfaces must be properly prepared, which may include cleaning, sanding, drying, and sometimes priming, in order to achieve even coverage and good adhesion. | 0.25 | Intermediate |
| Paper Machine Seal Water Systems | Seal water systems used on paper and board machines are used to cool and lubricate key equipment, create seals, and increase the efficiency and operation of key equipment. This course discusses the typical equipment used in seal water systems, as well as safety guidelines and hazards around seal water systems. | 0.25 | Intermediate |
| Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in parallel are connected so the same voltage is applied to each component. In this course, participants will learn about the fundamentals of parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Password Security Basics | This course provides an overview of password security and management, including the basic principles of password security, the elements of a strong password, and strategies of how to create and maintain passwords. | 0.25 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Past, Present and Future of Building Energy Codes and DOE Appliance Mandates | National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continued to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates. | 2 | Intermediate |
| Peer Checking | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Peer Checking human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Performance Management: 01-Preventing Performance Problems | The most effective method for managing performance problems is preventing them. As a manager, its important that you have the knowledge and tools used to prevent performance problems. To start out you'll concentrate on how to successfully hire people that will contribute to your organizations skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. You'll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 02-Identifying Performance Problems and Causes | Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. You'll also explore the role that personality plays in performance problems. You'll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 03-Feedback and Counseling | The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series. | 1 | Intermediate |
| Performance Management: 04-Effectively Disciplining Problem Performance | Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. You'll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change. | 1 | Intermediate |
| Personal Protective Equipment For Mold Remediation Contractors and Consultants | From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. | 1 | Fundamental |
| Personal Safety for Lab Technicians | This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Persuasion: The Art of Communication | All communication is persuasion! This course teaches you to communicate well and persuade effectively. There are many reasons why we communicate - to inform, to share our viewpoint, to educate, and to sell. Communications guru Barbara Evers would argue that all these forms of communication are in fact forms of persuasion. In this course Barbara Evers and Wofford Jones walk through tips and techniques to take advantage of when you need to communicate and persuade. | 1.25 | Fundamental |
| Photoswitches, Proximity Sensors, and Feedback Devices | Photoswitches, proximity sensors, and feedback devices are all used to detect objects or information. They are useful in industrial and manufacturing environments to sense product or personnel in the line of machinery or equipment. This module discusses the operation of the different types of each of these. | 0.25 | Intermediate |
| Physics Basics | Understanding physics is a huge endeavor as it covers so many different scientific elements, from the gravity that keeps people from floating into space to the momentum that keeps an object in motion. Simply defined, physics is a branch of science that studies matter and its motion, as well as how it interacts with energy and forces. It covers such subjects as motion, electricity, work and energy, astronomy, waves and sound, light and optics, and nuclear physics and relativity. This module will focus on how physics relates to motion, work, and energy. | 0.5 | Intermediate |
| Pipes and Valves: Basic Pipefitting Skills | Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square. | 2 | Intermediate |
| Pipes and Valves: Calculating Offsets | Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets. | 2 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe | Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method. | 2 | Intermediate |
| Pipes and Valves: Installing Pipe Hangers and Supports | Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors. | 2 | Intermediate |
| Pipes and Valves: Installing Screw and Welded Pipe | Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping. | 2 | Intermediate |
| Pipes and Valves: Pipes and Pipe Fittings | This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe. | 2 | Intermediate |
| Pipes and Valves: Special Calculations | Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures. | 2 | Intermediate |
| Pipes and Valves: Valve Maintenance | This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it. | 2 | Intermediate |
| Pipes and Valves: Valve Types and Operation | This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated. | 2 | Intermediate |
| Piping and Auxiliaries: Basic Components and Functions | This course is designed to familiarize participants with some of the basic components commonly found in piping systems. After completing this course, participants should be able to state the purpose of piping and pipe fittings and describe some common types of pipe fittings. They should also be able to describe devices that are used to accommodate the weight and movement of piping, and they should be able to explain how insulation and heat tracing help to control temperatures in piping systems. | 2 | Intermediate |
| Piping and Auxiliaries: System Components and Operation | This course is designed to familiarize participants with some of the auxiliary components commonly found in piping systems. After completing this course, participants should be able to describe the function and operation of rupture discs, relief valves, safety valves, and some common types of steam traps. They should also be able to describe basic procedures for draining and filling liquid systems, and they should be able to describe some typical operator checks for fluid systems. | 2 | Intermediate |
| Plant Science: Fluid Systems | This course is designed to introduce participants to the characteristics, components, and operation of fluid systems. After completing this course, participants should be able to explain, in general terms, what a plant system is and what a fluid is. They should also be able to explain the basic layout of a liquid system and describe energy conversions in a liquid system. Participants should also be able to describe the basic parts of a compressed air system and the basic operation of several gas and vapor system devices. | 2 | Intermediate |
| Plant Science: Forces and Machines | This course is designed to introduce participants to scientific principles associated with applied forces and the operation of basic machines. After completing this course, participants should be able to define work, power, and efficiency; and explain the mechanical advantage of this inclined plane and the lever. They should also be able to explain the hydraulic principle and the relationship between friction and the operation of machines. | 2 | Intermediate |
| Plant Science: Gases and Flowing Liquids | This course is designed to familiarize participants with basic concepts associated with the properties of gases and flowing liquids. After completing this course, participants should be able to describe the major properties of gases and explain how these properties are related. They should also be able to explain how pressure can be measured and to describe the effects of flow, velocity, and friction on the head pressure of a liquid. | 2 | Intermediate |
| Plant Science: Heat | This interactive training is designed to introduce you to some of the basic principles associated with heat and heat transfer. In this course, we will describe some of the effects of heat, the relationship between temperature and thermal energy, and the Law of Energy Conservation. We will define the terms sensible heat and latent heat. Also, we will discuss the effects of pressure on the temperature at which a substance undergoes a phase change. | 0.5 | Intermediate |
| Plant Science: Heat Transfer | This interactive online course is designed to introduce you to the fundamentals of heat transfer and the basic operation of a typical heat exchanger. We will describe the effects of a temperature difference on heat transfer and the three modes of heat transfer. We will also explain the basic operation of a shell and tube heat exchanger and identify problems that can occur in a heat exchanger | 0.5 | Intermediate |
| Plant Science: Process Dynamics and Measurement | This course is designed to familiarize participants with the characteristics of dynamic process operation and with devices that are commonly used to measure process variables. After completing this course, participants should be able to explain what resistance and capacitance are in process systems and to describe factors that affect the response of a process system to operating changes and process disturbances. Participants should also be able to describe devices that can be used to measure pressure, flow, level, and temperature. | 0.5 | Intermediate |
| Plant Science: Solids and Liquids | This course is designed to familiarize participants with basic scientific principles that relate to solids and liquids. After completing this course, participants should be able to describe the general molecular structure of solids, liquids, and gases. They should also be able to describe specific properties associated with solids and liquids. | 2 | Intermediate |
| Plastic and Rubber Basics | Plastics and rubbers are used in many industrial and non-industrial applications. This course discusses the definition of plastics and rubbers as well as their types, properties, and applications. This course also illustrates cutting, drilling, shaping, and fastening plastics. | 0.25 | Intermediate |
| PLC Basics | A Programmable Logic Controller (PLC) is a computer that is designed to be used in industrial applications. The PLC has a specialized operating system that carries out a set of user instructions over and over again. This course will discuss what a PLC is as well as common PLC components and applications. | 0.4 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PLC Ladder Logic | Programmable logic controllers, or PLCs, are specialized, robust industrial computers. They are designed to continuously control equipment and processes based on process inputs and logical control programming. One of the most common ways to program this type of computer is a technique called ladder logic. This is a technique that provides a visual representation of the logic flow which helps with both initial programming and subsequent troubleshooting. This course discusses the background of ladder logic as well as basic instruction types such as examine if closed and examine if opened. This course also illustrates several varying ladder logic examples such as a lamp, motor starter, and garage door. | 0.4 | Intermediate |
| PLCs: Troubleshooting Software, Part 1 | Most PLC system problems are hardware related, and most of these are in the I/O systems. However, software and network problems do occur, and they are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This module will examine how to use the PLC programming software to troubleshoot software and network problems. It will also explore techniques and the hardware and software tools that are available for isolating software problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| PLCs: Troubleshooting Software, Part 2 | Most PLC system problems are hardware related, and most of these are in the I/O systems. However, software and network problems do occur, and they are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This module will examine how to use the PLC programming software to troubleshoot software and network problems. It will also explore techniques and the hardware and software tools that are available for isolating software problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 01-Project Management Overview | Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations | In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups | Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling | In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure | Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan | A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope | One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute. | 1.25 | Intermediate |
| PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope | A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area. | 1.25 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities | Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule | Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration | One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 12-Controlling Costs | Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 13-Estimating & Budgeting Project Costs | Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 14-Project Quality Planning | Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project. | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control | A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources | The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources | As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project. | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications | Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 2 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan | One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks | In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts. | 1.75 | Intermediate |
| PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis | All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 22-Risk Management Planning | Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control | Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project | This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bitter conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project | As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.5 | Intermediate |
| PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning | Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1.25 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication | Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle.Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide) | 1 | Intermediate |
| PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline | Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam. | 1 | Advanced |
| PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020 | Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification. | 1 | Advanced |
| Pneumatic Basics | Pneumatics is defined as using pressurized gases to do work. Pneumatic systems are based on the controlled use of compressed air as a source of stored potential energy. By controlling how the air is released, the energy can be turned into movement. Pneumatics are used in handheld power tools, automatic doors, and conveyor systems. They are also used in aircraft for landing gear, flaps, and other instruments. The air brakes on buses and trucks are pneumatic, as well as some exercise machines. Typically, pneumatic systems are more flexible, less costly, and more reliable than many other types of electric motors. | 0.5 | Intermediate |
| Pneumatics: Actuators and Positioners | Typically, pneumatic actuators and positioners are rugged and dependable. But like any other piece of equipment, their parts can wear out from the rigors of around-the-clock use and may need to be replaced or adjusted from time-to-time. In this interactive online course, we're going to look at several different actuators and positioners to see what their component parts are, how they work, and how to adjust them. | 1 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems | In your plant, there are process conditions that can vary or change, such as temperature, pressure, flow and level. Frequently, these process variables must be maintained at or near a desired value. Understanding how these systems operate will allow you to manage your system at desired operating conditions.<br>This interactive online course will teach you about the elements normally found in a basic pneumatic control system. You will learn about control systems used to maintain temperature, pressure, flow and level. Additionally, you will learn about resources that provide information about pneumatic control systems. | 1 | Intermediate |
| Pneumatics: Basic Pneumatic Control Systems and Diagrams | Pneumatic instruments play an important role in the overall operation of a plant. Knowing how to troubleshoot and fix problems with pneumatic instrument systems will allow you to get your plant quickly back into operation.<br>This interactive online course will use an example of a level control system to teach you about pneumatic instrumentation, basic pneumatic instrument groups and their functions. You will also learn about commonly used plant system diagram symbols and how they are used in diagnosing and correcting problems in the instrument systems found in your plant. | 1 | Intermediate |
| Pneumatics: Controllers | In industrial process plants, it's critical for pneumatic controllers to work properly and to be adjusted correctly. Understanding how controllers operate will help you when you're repairing a controller or tuning a pneumatic control system.<br>This interactive online course will teach you about several types of pneumatic controllers. You will learn how these controllers operate and how to make basic adjustments to the controllers. You will also learn the mechanisms in a controller and how their four basic functions operate. | 1 | Intermediate |
| Pneumatics: Indicators and Hand-Auto Control Stations | Transmitters, recorders, signal converters, indicators, and hand-auto control stations are all important pieces of instrumentation and control equipment used in pneumatic systems. Understanding how these instruments function will allow you to maintain your system at desired operating conditions. This interactive online course will teach you about the relationship between the input and output of a transmitter and how a pneumatic transmitter develops an output pressure signal that accurately represents the value of a process variable. You will also learn how to perform calibration adjustments on a typical pneumatic transmitter. Additionally, you will learn the function and purpose of hand-auto control stations. | 1 | Intermediate |
| Pneumatics: Multi-Element Pneumatic Control Systems | Multi-element pneumatic control system,s like all process control systems, operate primarily to maintain a process variable (such as level, temperature, flow, or pressure) at or near a predetermined value known as set point.<br>This interactive online course focuses on several types of multi-element pneumatic control systems that are commonly used in industrial plants. The basic design and function of the control system are explained, and emphasis is also placed on how the instruments and componenets in the system work together to keep a process variable at or close to set point. | 1 | Intermediate |
| Pneumatics: Pneumatic Instrument Tubing | In any industry that uses pneumatic instrument systems to monitor and control plant processes or conditions, you'll discover miles of associated pipes and tubing routed throughout the plant. Without these intricate networks of piping and tubing, a plant couldn't operate. The important job of installing pipe and tubing for pneumatic control systems often belongs to you, the instrument technician. You'll be concerned specifically with installing pipe for instrument air supplies and tubing from one component to another in pneumatic systems that control process variables. Our goal in this interactive online course is to examine the basic skills and information you need to know to install piping and tubing for a pneumatic control system. To meet this goal, we'll observe a qualified technician as he puts a piping and tubing installation together. We'll take a close look at the materials and tools he uses and the technique he applies. However, before we start to do any actual work with pipe or tubing, we need to establish what pipe and tubing are, and we need to take a look at the major characteristics of each; their function, the important size factors for both, and the type of material they're made of. By doing this, we'll have a better understanding of how pipe and tubing are similar in some respects but different in others. | 1 | Intermediate |
| Pneumatics: Self Balancing Instruments | At first glance, most pneumatic control equipment seems like a maze of bellows, cams, beams, and other mechanisms packed into a small area. Sometimes the design makes it appear as if the instrument is hard to understand. However, many of these instruments are fairly easy to understand if you know what you're looking for. In this interactive online course, we'll look at a few types of force balance and motion balance instruments in greater detail. We'll see how they operate and where common adjustments are located. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pneumatics: Transmitters | Most pneumatic instruments have in common basic components and structures. And even though they may look different, their operation is often quite similar. In this interactive online course, we will cover the information needed to recognize the common components and structures of most pneumatic instruments and to understand how the common structures are related. We will cover types of pneumatic instruments, components, and mechanisms, self-balancing instruments, input mechanisms, error detector mechanisms, and output/balancing mechanisms. | 1 | Intermediate |
| Pneumatics: Troubleshooting Pneumatic Instrument Systems | As an instrument technician you're going to find yourself doing a lot of troubleshooting. By using a logical procedure, you can face each problem confidently and solve the problem logically and efficiently. This interactive online course will teach you the principles of troubleshooting and how to apply them to troubleshooting pneumatic instrument systems. You will learn how to observe, diagnose, and restore pneumatic instrument systems following troubleshooting principles. Additionally, this course will walk you through a troubleshooting example to demonstrate how to diagnose and resolve a pneumatic instrument system issue. | 1 | Intermediate |
| Pneumatics: Tuning Pneumatic Control Systems | When you tune a control system, you check and adjustment the instruments in the system to ensure that it operates within specified limits. The procedure's a lot like tuning an automobile engine. No two engines are the same, but if you know the engine and you use a logical tuning method, you can probably do the job. Now, in a plant, no two process control systems are exactly the same, but with the right knowledge and resources, you can tune a variety of control systems. In this interactive online course course, we'll look at some of the basic principles of tuning a pneumatic control system. Then, we'll look at the process characteristics that are important in tuning, and we'll examine some common tuning methods. Afterwards, we'll see how an instrument technician tunes a control system. Most of the information that you'll learn from this course can be applied to the pneumatic control systems in your plant. | 1 | Intermediate |
| Pole Framing and Guying | The purpose of this course is to teach several approaches to framing and guying utility poles. Several types of construction that are in common use are presented. Several approaches to framing poles are demonstrated: single crossarm, multiple crossarm, armless, and vertical construction. Techniques for positioning and installing guy wires are also explained. At the conclusion of this course, participants should be able to describe several types of construction. They should be able to install crossarms and insulators on utility poles. They should also be able to explain the considerations involved in selecting and positioning guys and anchors and to demonstrate how to install a guy wire. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pole Top Equipment & Replacement, Part 1 | The Pole Top Equipment and Replacement course is designed to familiarize participants with the various types of pole top equipment and switches used in overhead distribution systems. Pole top equipment operation and function are discussed along with general procedures for equipment replacement and maintenance. To obtain maximum advantage from this course, participants should be familiar with the Transmission and Distribution (T&D) Systems and Theory courses and the T&D Maintenance Basics courses or have equivalent background. At the conclusion of this course, participants should be able to describe how pole top cutouts, reclosers, sectionalizers, and gang-operated switches are used to provide coordinated protection for a distribution system. They should also be able to identify problems that occur in pole top equipment, and they should be able to describe general procedures for replacing fused cutouts, reclosers, and gang-operated switches. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pole Top Equipment & Replacement, Part 2 | The purpose of this course is to teach how overhead capacitors and voltage regulators work, how to detect problems in their operation, and how to safely replace them if necessary. To accomplish this, the course presents the basic theory and operating characteristics of overhead capacitors and voltage regulators and demonstrates how they can be safely replaced. At the conclusion of this course, participants should be able to describe the function and operation of overhead capacitors, how to detect operating problems, and how to replace an overhead capacitor safely. They should also be able to describe the function and operation of overhead voltage regulators, how to detect voltage regulator problems, and how to safely replace an overhead voltage regulator. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pole Top Transformer Replacement | The purpose of this course is to teach the basic procedures used to safely remove and install pole top transformers. Although specific types of transformers are used as examples, emphasis is placed on general procedures that apply to the majority of pole top transformers. At the conclusion of this course, participants should understand the basic procedures for replacing pole top transformers safely and efficiently. Their understanding should include how to use a boom or blocks and a truck-mounted winch to install or remove a transformer and the basic techniques used to connect and disconnect pole top transformers. They should also be familiar with some methods commonly used to replace a transformer without interrupting customer service, and they should know how to use the appropriate safety equipment for transformer replacement procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Portable and Emergency Equipment | This training program focuses on common types of portable and emergency equipment that are found in industrial facilities. Some types of portable equipment are used to periodically analyze conditions in a process or inside process equipment. Other types of portable equipment, such as pumps, have specialized roles that are determined by plant procedures and policies. Emergency equipment, such as respirators and fire fighting equipment, is used strictly during emergencies. | 1 | Intermediate |
| Positive Displacement Pump Maintenance Basics | The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures. | 1 | Intermediate |
| Positive Displacement Pumps | A positive displacement pump works by capturing a given volume of liquid at the suction of the pump, and then mechanically forcing it out of the discharge at a higher pressure. In contrast to centrifugal pumps, in which the flow is affected by downstream pressure, positive displacement pumps (within the limitations of the driver) deliver a nearly constant flow, independent of the downstream pressure. Positive displacement pumps can be categorized as reciprocating or rotary action pumps. This course describes the general characteristics of positive displacement pumps and the principles of operation of various common designs. | 0.5 | Intermediate |
| Power BI Essentials | Learn to create stunning reports with real-time data. In Microsoft's Power BI, you can connect to existing data to create modern data visualizations and reports. In this course, you will learn everything you need to know to design reports, charts, and dashboards and distribute them to your team. We will walk you through the process from install to publish. | 1 | Fundamental |
| Power Boiler Air and Combustion | The purpose of a power boiler is to create steam by applying heat energy to water. The necessary heat energy is produced by combustion. Fuel and oxygen are required for combustion to occur. To ensure complete combustion of the fuel in the boiler furnace, enough air must be thoroughly mixed with the fuel. Each power boiler fuel requires a different amount of air for complete combustion and the combustion controls must be designed to provide it. This module describes the role of combustion in power boilers as well as major components and flows of power boiler air systems. | 0.25 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Power Boiler Ash Handling | The purpose of a power boiler is to create steam by applying heat energy to water. Many power boilers burn solid fuels, such as wood residue (biomass) and coal, which produce large amounts of ash that must be handled and disposed of. Each solid fuel boiler has a specially designed system to safely remove, transport and dispose of the ash generated during operation of the boiler. This module describes how ash is generated and the typical components used to remove ash in a power boiler. | 0.25 | Intermediate |
| Power Boiler Basics | The purpose of a power boiler is to create steam by applying heat energy to water. The steam produced by the power boiler can be transferred through piping to a number of applications throughout industrial facilities. This module describes the purpose, design, operation, and key components of a power boiler. | 0.25 | Intermediate |
| Power Boiler Feedwater and Steam | The purpose of a power boiler is to create steam by applying heat energy to water. The water supplied to the boiler, which is converted to steam, is called feedwater. This feedwater system removes any impurities in the condensate, which is steam converted back to water, preheats and pressurizes it then returns it to the power boiler steam drum. The power boiler control system maintains the proper flow of feedwater to the boiler. As the hot combustion gases pass from the furnace through the generating tube bank, steam is formed in the tubes and rises to the steam drum. This module describes the major components and flows associated with feedwater and steam in a power boiler. | 0.5 | Intermediate |
| Power Boiler Fuel Supply Systems | In order for a boiler to convert water to steam, a fuel source must release its energy in the form of combustion in the boiler furnace. Fuel systems play a critical role in the performance of a boiler. The most commonly used fuels in power boilers are natural gas, fuel oil, coal, and wood (biomass). Each of these fuels have different physical properties that require delivery systems that are unique to that fuel. Fuel systems should be properly operated and maintained to run efficiently. | 0.25 | Intermediate |
| Power Plant Boilers: Abnormal Conditions and Emergencies | This course is designed to familiarize participants with common boiler problems and some of the basic causes of boiler explosions. After completing this course, participants should be able to describe basic procedures for dealing with the loss of certain boiler auxiliaries, leaks, overpressure conditions, and equipment fires. They should also be able to describe some basic causes of boiler explosions and explain what operators can do to help prevent boiler explosions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Boilers: Combustion and Operation | This course is designed to familiarize participants with the basic principles associated with combustion in a boiler and the flow of air and combustion gases during boiler operation. After completing this course, participants should be able to identify the elements needed for combustion in a boiler, explain how fuel is delivered to the burners, and describe the parts and operation of various types of burners. They should also be able to describe the air and gas flow path through a boiler and describe methods used to remove particulates and harmful gases from combustion gases. In addition, participants should be able to explain when and why vents, drains, blowdown valves, and soot blowers are used. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Boilers: Normal Operations | This course is designed to familiarize participants with the tasks involved in operating boilers under normal conditions. After completing this course, participants should be able to explain what steady state conditions for a boiler are and describe typical operator concerns associated with the energy losses that occur during operation of a boiler under steady state conditions. They should also be able to describe operator responsibilities for monitoring and controlling the boiler's steam/water system, air/gas system, steam temperature, and ash removal systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Boilers: Startup and Shutdown | This course is designed to familiarize participants with basic techniques for starting up and shutting down drum-type boilers and once-through boilers. After completing this course, participants should be able to describe basic procedures for performing a cold startup of a drum-type boiler, lighting off the furnace, warming up the boiler, and establishing the boiler flame. They should also be able to describe basic procedures for shutting down a typical drum-type boiler. In addition, participants should be able to compare and contrast the startup and shutdown of a drum-type boiler with the startup and shutdown of a once-through boiler. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Boilers: Water and Steam | This course is designed to familiarize participants with the basic principles associated with the flow of water and steam in various types of boilers. After completing this course, participants should be able to describe the flow path of water through a typical drum-type boiler, explain the differences between natural circulation and controlled circulation, and describe the functions and components of a typical boiler drum. They should also be able to describe the flow path of steam from the boiler to the condenser in a typical generating unit and explain the function of each component in the flow path. In addition, participants should be able to explain why some boilers operate above the critical point, describe the flow path of water in a once-through super critical boiler, and explain how steam pressure is maintained in a drum-type boiler and in a once-through boiler. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Efficiency: Problems and Analysis | This course is designed to reinforce major concepts taught in the heat rate improvement series by having participants participate in the identification and analysis of problems that affect heat rate. After completing this course, participants should be able to identify some of the problems that commonly occur in power plants by using related parameters, and describe how heat rate and fuel consumption are affected by these problems. The final segment in the course summarizes key points from the courses in the heat rate improvement series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant Operation: Safety and Pollution Control | This course is designed to familiarize participants with some of the basic concepts associated with personal protection, tagging procedures, and pollution control. After completing this course, participants should be able to describe some of the basic protective equipment that operators commonly use and explain how a tagging system protects personnel who work on or around plant equipment. They should also be able to describe methods of controlling air pollution, thermal pollution, water pollution, and noise pollution. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Protection: Boiler and Turbine Protections | This course is designed to familiarize participants with devices and techniques used to protect boilers and turbines. After completing this course, participants should be able to identify common boiler and turbine problems and explain how they can be prevented or minimized. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Power Plant Protection: Fundamentals | This course is designed to familiarize participants with various types of hazards that may exist in a power plant. After completing this course, participants should be able to identify common types of mechanical and electrical hazards, temperature and pressure hazards, and fire and chemical hazards. They should also be able to describe devices and techniques that can be used to prevent or minimize these hazards. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Protection: Integrated Systems | This course is designed to familiarize participants with the interaction of various systems that work together to protect plant equipment. After completing this course, participants should be able to interpret logic diagrams that represent the functions carried out by plant protection equipment. They should also be able to identify conditions that can cause a boiler trip, a turbine trip, and a generator trip. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Systems: Condensate and Feedwater Systems | This course is designed to familiarize participants with the basic layout of a typical condensate and feedwater system and the basic operation of the system's individual components. After completing this course, participants should be able to identify the components in a condensate and feedwater system and describe the basic operation of each component. They should also be able to explain how the system normally operates, describe operator responsibilities associated with normal operation, and identify some common operating problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Thermodynamics | After completing this course, participants should be able to explain the basic processes of a typical steam/water cycle and the way the efficiencies of those processes relate to the overall efficiency of the plant. Participants should also be able to explain the effects of changing or modifying the components of a steam/water cycle and to explain what Rankine efficiency is. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant Turbines: Bearings and Operation | This course is designed to familiarize participants with basic principles associated with turbine shaft bearing lubrication, turbine speed control, and turbine operation. After completing this course, participants should be able to identify and describe the functions of the components of a typical turbine lube oil system. They should also be able to describe the basic components and operation of a typical turbine speed control system. In addition, participants should be able to describe operator responsibilities associated with turbine startup, operation, and shutdown. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant Turbines: Steam Flow | This course is designed to familiarize participants with basic principles associated with the construction and operation of steam turbines. After completing this course, participants should be able to state the functions of the main parts of a typical turbine and describe how steam causes impulse blades and reaction blades to turn a turbine's wheels. They should also be able to describe the purpose and operation of a gland steam seal system, a gland steam seal exhaust system, a carbon seal, and a water seal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Power Plant: Condensate and Feedwater System | This course will describe the basic layout of a typical condensate and feedwater system, the basic functions of the system components, and general operation of each component. It will also describe the normal operation of a typical condensate and feedwater system, identify operator responsibilities associated with normal operation, describe some operating problems that may occur, and explain how operating problems can be dealt with. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Condenser and Circulating Water | The condenser and the circulating water system play a vital role in plant operation and efficiency by completing the steam/water cycle. Part of an operator's job involves monitoring and controlling the condenser and circulating water system. Therefore, it is important to have a good understanding of how these components work and what problems can affect them. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Power & Energy | Power plant operators are responsible for maintaining power production and making sure the plant operates safely and efficiently. To see why this is important, it is helpful to understand how an individual plant fits into a power system providing electricity and distributing electricity to customers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Power Generation | This course covers topics related to power generation at power plant systems, including voltage induced in an alternating current (AC) generator, generator output current, generator excitation, hydrogen cooling systems, and stator cooling systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Steam Cycle | In a power plant, the steam cycle is essential to the production of electricity. This course will familiarize participants with basic concepts associated with the flow of steam and water through a power plant. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Plant: Steam Systems | Steam Systems is a course designed to familiarize participants with the design and operation of the steam systems found in a typical power plant. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Power Supplies | An electronic power supply is a device, or a group of devices, that converts normal generated alternating current (AC) power into power that is suitable for electronic equipment. An electronic power supply typically includes some or all of the following types of devices: transformers, rectifiers, filters, regulators, voltage multipliers, and voltage dividers. The components of a specific power supply are directly related to the requirements of the electronic equipment being served. | 1 | Intermediate |
| Power Up PowerPoint | Giving A Presentation? If You Want To Avoid Boring Your Audience To Tears, This Course Is A Must<br>Most Presentations Are Filled With Bullet Point Lists, Thick Paragraphs Of Text, And The Occasional Picture In A Desperate Attempt To Break Up The Monotony ... but you can do better than that! This course shows you ways to turn standard content into something that's ACTUALLY INTERESTING to your audience. Taught by presentation skills guru Kelly Vandiver and TEDx speaker Dr. Rebecca Heiss, Power Up PowerPoint will show you how to power up your next presentation! | 2.75 | Intermediate |
| Powerful Presentations | Audiences decide if a presentation is worth paying attention to in the first 1-2 minutes. To be an effective presenter, there are multiple factors to consider and skills to develop. In this course, through the use of application exercises and a rich multi-media process, you will learn the key skills to creating powerful presentations that get results. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Precision Measuring Tools | This course covers micrometers and telescoping gauges. It also demonstrates how to read and use micrometers, dial indicators, digital calipers, thermometers, tachometers, and strobe RPM monitors. | 0.25 | Intermediate |
| Pressure and Pressure Measurement | Many of the instruments used to monitor systems or processes in a plant measure pressure. In order to understand how these instruments operate, instrument technicians must understand the concept of pressure; the ways in which solids, liquids, and gases exert pressure; and the standards established for pressure measurement. These topics will be covered in this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pressure Gauges and Calibration, Part 1 | The successful operation of a plant is closely linked to the reliability of the indicating instruments used by operating personnel. This course introduces participants to one of the primary responsibilities of instrument technicians, which is to ensure that each of the instruments used to monitor plant processes provides accurate indications. The standard method of ensuring that instruments such as pressure gauges are accurate is to check their calibration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Pressure Gauges and Calibration, Part 2 | To properly calibrate rotary-geared pressure gauges, instrument technicians must have an understanding of pressure elements and adjustable pointer mechanisms; calibration standards, comparison graphs, and basic calibration procedures; and the differences in calibration procedures that are dictated by specific types of gauges. In addition to being able to perform calibrations on various types of pressure gauges, instrument technicians must also know how to compensate gauges for static pressures and to select devices that protect pressure gauges and thereby increase their service time. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Preventing Mold Growth | Preventing fungal growth begins with the building design and follows all the way through responding to a water intrusion event. This course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. | 1 | Fundamental |
| Preventing The Spread Of Contagious Illness | This new program, which includes information about seasonal flu, avian flu, SARS and MRSA in addition to swine flu, explains the origins and symptoms of these illnesses as well as the general hygiene and prevention measures required to prevent spreading and contracting all contagious illnesses. The video stresses prevention and the personal responsibility required to avoid spreading an illness or infection. Topics covered also include: Decontaminating work areas Special MRSA precautions Responding to a potential infection Medical diagnosis and treatment of contagious illnesses | 0.25 | Fundamental |
| Pricing as a Professional | This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Principles of Heat Transfer | This course is designed to familiarize participants with the basic laws governing heat in motion in a power plant. The course explains basic thermodynamic principles and shows how they apply to the efficiency of plant processes. After completing this course, participants should be able to explain the basic principles of thermodynamics and why they are important to power plant operation. They should also be familiar with temperature/entropy charts, and explain how they are used to determine and compare the efficiency of various processes in a plant cycle. | 1 | Intermediate |
| Problem Solving | Problem Solving is a course designed to familiarize participants with a basic process that can be used to solve almost any type of problem in the workplace. After completing this course, participants should be able to define a problem and the goal for its solution. They should then be able to work their way through the basic problem solving process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Problem Solving Strategies | Problems arise in the workplace on a daily basis. Often times, they can be very difficult and time consuming to solve. Approaching the problem with a structured plan can help improve your efficiency, determine hidden causes, and increase the likelihood that your solution will actually fix the problem. This course illustrates key concepts using a step-by-step plan for a real world example, along with practical tools and strategies like the 5 Whys technique, that you can use when troubleshooting problems in your workplace. | 0.25 | Intermediate |
| Procedure Use and Adherence | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Procedure Use and Adherence human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Process and Instrumentation Diagrams | Process and Instrumentation Diagrams, also known as P&IDs, are basically maps meant to show process connections and equipment relationships pictorially. They are invaluable during the planning and installation of new equipment, maintenance planning and procedures, and when comparing as-installed controls to the original design. This module will discuss how P&IDs are used, how to read the symbols used on P&IDs, and a real world examples of a P&ID system. | 0.5 | Intermediate |
| Process Chemistry | Process chemistry is chemistry that applies to process systems. An understanding of process chemistry can help process industry personnel understand the chemical reactions that occur in process systems. This course examines how the principles of material balancing, reaction rates, and equilibrium reactions apply to the process industry. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Process Control Charts | Many production facilities use process control charts to track and visually show the behavior and stability of a process over time. This course covers the benefits of using process control charts, the importance of consistency, the many kinds of process control charts, the different elements of process control charts, and how to continually improve the production process. | 0.25 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Process Control Fundamentals | Process control simply refers to the control of a process. The main goal of process control is to stabilize process operations in order to consistently produce the desired results, and it can be automatic or manual. In modern processing and manufacturing industries, process control is frequently implemented by automated, computer- based control systems which utilize a number of different tools. The fundamental building block of these systems is the process control loop. This module discusses open and closed loop controllers, as well as specific examples of each. | 0.25 | Intermediate |
| Process Reactor Fundamentals - RCPRF | When you're working around reactors, your primary responsibility is to make sure that the chemical reactions occur safely and efficiently. In a very real sense, you're responsible for controlling what goes on inside the reactors. In order to do that, you need to know some basic principles that govern reactor operations. Then, you can apply these principles to any reactor in your plant. This interactive online course focuses on the fundamentals of reactors used in process plants. Specific areas covered include the basic components of a reactor, reactor operation, types of reactors, auxiliary equipment associated with reactors, and the operator's role in reactor operations. | 1 | Intermediate |
| Process Safety Management (PSM): 1910.119 Overview and Auditing | The OSHA 1910.119 Process Safety Management (PSM) regulation applies to many companies that use and process flammable liquids as well as hazardous chemicals. With 14 required elements - it's a very comprehensive and challenging regulation. The PSM regulation literally changes the way affected companies run their business. This course will show you how to develop an effective PSM Program as well as survive an OSHA PSM inspection. | 1 | Intermediate |
| Process Safety Management (PSM): An Overview | This overview of PSM will provide a basic understanding of what PSM is and the topics that comprise it. PSM addresses Highly Hazardous Chemicals identified by OSHA and the process industries. These chemicals require safety considerations over and above normal chemicals. These safety considerations are the basis of PSM. Following course completion you will be able to identify key elements and what is and is not acceptable under PSM. | 1 | Intermediate |
| Process Safety Management (PSM): Compliance Audits | Compliance audits serve as a self-evaluation for employers to measure the effectiveness of their process safety management system. Audits can identify problem areas and assist employers in directing attention to process safety management weaknesses. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of compliance audits as part of the overall process safety management program. You will also learn how to implement compliance audits into your overall process safety management program and how to evaluate compliance with process safety management compliance audit requirements. | 1 | Intermediate |
| Process Safety Management (PSM): Contractors | On October 23, 1989, an explosion occurred at the Phillips Petroleum polyethylene plant in Pasadena, Texas. A massive vapor cloud was created causing 23 fatalities and over 100 injuries. Investigation into the incident revealed that a specialist maintenance contractor employed to do work on one of the reactors did not follow the proper procedures prior to maintenance work. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. Because contractors perform crucial activities on PSM covered processes, unsafe contractor work may jeopardize other employees as well as the contractors themselves. In this interactive online video course, safety expert Jon Wallace discusses the elements of the PSM Contractor requirement, including contractor selection, training, and evaluation. It is critical that contractors understand potential hazards of their work environment; therefore, a solid understanding of the PSM Contractor requirement will help ensure employers correctly train contractors on OSHA regulations. | 1 | Intermediate |
| Process Safety Management (PSM): Emergency Planning & Response | Proper training and preplanning is an essential part of an emergency action plan and can help prevent disasters from occurring. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of emergency planning and response as part of the overall process safety management program. You will also learn about emergency planning and response requirements and how to implement emergency planning and response into your overall process safety management program. | 1 | Intermediate |
| Process Safety Management (PSM): Employee Participation | The Union Carbide explosions in Bhopal India, 1984 and Institute, West Virginia in 1985. The Phillips Petroleum explosion in 1989, and ARCO explosion in 1990. These are just four major incidents that led to the OSHA Process Safety Management Standards. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released. The employee participation element is a critical part of PSM that enhances overall effectiveness in areas including Process Hazard Analysis (PHA) and Incident Investigation. In this interactive online video course, learn from industry expert Jon Wallace about the employee participation component of the Process Safety Management Standards. Subjects covered include employer requirements for a written plan of action to confirm employee participation, consultation with employees regarding hazards, and employee access to process hazard analysis. Employers must follow OSHA regulations and ensure employee participation and EPA Clean Air Act Amendments are implemented in training. | 0.5 | Intermediate |
| Process Safety Management (PSM): Hot Work Permits | In January 2008 there was a fire at the Monte Carlo Resort and Casino in Paradise, Nevada. Welders at the time did not use fire protection mats, and the resulting fire caused 100 million dollars in damage, with thirteen people suffering from smoke inhalation and seventeen people suffering from minor injuries. This could have been prevented with an effective Project Safety Management Hot Work Permit Program. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. The Hot Work Permit Program is one of the fundamental components of occupational safety. Hot Works is geared towards any work that produces sparks or flames, and can includes welding and cutting among potential ignition sources. In this interactive online video course, safety expert Jon Wallace discusses the components of an effective Hot Work Permit program, how to implement it, and how it can prevent property damage, and loss of life. An effective Hot Works Permit Program will also help avoid OSHA violations. | 1 | Intermediate |
| Process Safety Management (PSM): Incident Investigations | There have been many incidents involving multiple losses of life that led to the formation of the OSHA Process Safety Management Standard. Learning from past incidents and investigating the root causes of these incidents can help us be prepared and prevent history from repeating itself. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of incident investigation as part of the process safety management program. You will also learn about incident investigation requirements, and how to implement an incident investigation program into your overall process safety management program. | 1 | Intermediate |
| Process Safety Management (PSM): Management of Change | Uncontrolled change contributes to 80% of serious industrial accidents. Management of Change (MOC) requires written procedures to manage changes to process chemicals, technology, equipment, facilities and procedures that affect a covered process. Any potential change is evaluated for its impact on the process and all affected personnel will be informed and trained in the change prior to start-up of the process. In addition, any change requires all other elements of PSM to be updated to reflect the change. Lack of or an ineffective Management of Change Program is a ticking time bomb that will eventually explode. | 0.5 | Intermediate |
| Process Safety Management (PSM): Mechanical Integrity | Mechanical Integrity (MI) rivals Process Safety Information in complexity and receives the most OSHA citations. This is because MI addresses most of the equipment in a process and is therefore very broad. MI requires written procedures to maintain the integrity of process equipment and training for process overview, hazards and employee task procedures. Typically the most important task for Mechanical Integrity is equipment inspection and testing. This course offers a working knowledge of Mechanical Integrity and its many elements. | 0.5 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Process Safety Management (PSM): Operating Procedures | Methyl isocyanide, aldicarb oxime, anhydrous ammonia. These are just three examples of highly toxic chemicals that have been released into the atmosphere as a result of chemical plant explosions in recent years. Exposure to highly hazardous chemicals can be fatal; therefore, Process Safety Management (PSM) was designed to help prevent such chemicals from being released. PSM outlines steps for the management of hazards associated with processes using highly hazardous chemicals. Because most PSM covered processes are complex operations, the need for clear operating procedures is critical in order to maintain a safe and healthy work environment. In this interactive online video course, industry expert Jon Wallace discusses the required elements for operating procedures, including steps for each operating phase, operating limits, and safety and health considerations. A solid understanding of this information will help ensure employers are in compliance with OSHA PSM regulations. | 1 | Intermediate |
| Process Safety Management (PSM): Pre-Startup Safety Review | On August 28, 2008, an explosion at the Bayer Crop Science plant in Charleston, West Virginia killed two workers and injured eight others. The ignition of a five-thousand pound chemical vat occurred during the restart of the methomyl unit after upgrades were performed on the system. Incident investigation revealed several causes, including inadequate pre-startup safety review, and inadequate operator training on the new system. This is an example of the importance of Process Safety Management (PSM). PSM is aimed at preventing highly hazardous chemicals from being released, and startup and shutdown are potentially the two most dangerous times for a PSM process. In this interactive online video course, safety expert Jon Wallace discusses the components of the PSM Pre-Startup Safety Review. The purpose of this review is to ensure safe operation of a PSM covered process by identifying and correcting unsafe conditions prior to process operation. | 1 | Intermediate |
| Process Safety Management (PSM): Process Hazard Analysis | Process Hazards Analysis (PHA) is best described as the building block for the successful PSM program. This course provides an overview of Process Hazards Analysis, acceptable methodologies and information required for PHAs. PHAs identify, evaluate, and control the hazards involved in the process. Priority of PHAs is determined by such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. This course is an introduction to PHAs and does teach how to conduct a Process Hazards Analysis. | 0.5 | Intermediate |
| Process Safety Management (PSM): Process Safety Information | Process Safety Information (PSI) identifies the many types of information necessary to convey an understanding of a PSM covered process. Process Safety Information is typically grouped into three topics: hazards, technology and equipment. The hazards of the process must be communicated to employees. The process technology of designing safe systems, safety components and devices help employees understand the safety built into the process. The key point of Process Safety Information is not to remember it, but to know where to find the information if needed. | 0.5 | Intermediate |
| Process Safety Management (PSM): Trade Secrets | There are companies that have millions of dollars in trade secrets and making that information accessible to competitors or the general public can have a significant effect on their competitive advantage. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about trade secret requirements outlined in the process safely management standard. You will also learn about your company's rights and responsibilities with respect to company trade secrets and OSHA's rights and responsibilities to access trade secret information. | 0.5 | Intermediate |
| Process Safety Management (PSM): Training | On January 31, 2006, an explosion caused by a runaway chemical reaction rocked the Synthron facility in Morganton, North Carolina. One worker was fatally burned, and 14 others were injured (two seriously). The explosion destroyed the facility and damaged structures in the nearby community. Incident investigation revealed that Synthron had minimal safety information on its chemical processes, and personnel were poorly prepared to recognize dangers from an uncontrolled chemical reaction. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released, and effective training is needed to ensure the safe operation of oftentimes complex operations. In this interactive online video course, industry expert Jon Wallace discusses the elements of the PSM Training requirement, including initial training, refresher training, and training documentation. A solid understanding of the details of this requirement will help ensure employers are in compliance with OSHA PSM regulations. | 1 | Intermediate |
| Process Sampling: Obtaining samples | Sampling is an important task performed to determine product quality. Operators routinely sample process fluids and solids at various stages of the production process. This activity explains why samples are taken in process systems, describes information that is typically included on a sample label, and describes how to obtain contaminant-free representative samples of process liquids, solids, and process gases. | 1 | Intermediate |
| Process Sampling: Testing Samples | This course is designed to familiarize participants with basic procedures for performing tests on samples of process materials and products. After completing the course, participants should be able to describe how to perform a pH test, a percent solids test, a specific gravity test, and a titration. They should also be able to describe the operation of a gas chromatograph and how a gas chromatograph is used to perform tests on complex gas mixtures or solutions. | 2 | Intermediate |
| Programmable Logic Controllers (PLC's) - Introduction and Theory of Operations | This interactive online course offers a thorough introduction into programmable logic controllers (PLCs). We will begin with an overview of the history and the role PLCs play in factory automation. We will discuss the basic principles of PLCs and core modules of an industrial control system. Functions (analog input and output), disturbed control interface, I/O's (digital inputs and outputs), the COU, and isolation power will also be examined. | 1 | Intermediate |
| Programmable Logic Controllers (PLC's) - Programming a PLC System | Programming a PLC system provides the basic technical skills and knowledge necessary to work with programmable logic control systems typically found in an industrial or manufacturing environment. This interactive online course is designed to equip the novice with little or no prior PLC programming experience with the basic tools necessary to create a complete PLC program using ladder logic common to most current platforms. Upon completion, you will be able to use programmable logic controllers to solve machine and process problems. A systems approach to PLC programming training is used because the programmable logic controller is one major component of larger manufacturing systems. | 0.5 | Intermediate |
| Programmable Logic Controllers (PLC's) - Design and Installation of a PLC System | Automation in the manufacturing industry can improve production output and reduce costs. A modern, competitive workforce must be technically literate and know the ins and outs of programmable controllers. New state of the art electrical and electronic devices and equipment use PLCs to increase manufacturing flexibility, simplify processes, and improve safety. Automation also allows a better quality of life for workers while maintaining quality, efficiency, and a market for the product produced. This interactive online course is designed to give you the ability to size and select the controllers necessary for the job at hand. While it is uncommon for engineers to build their own controller designs, it is the engineers' responsibility to effectively communicate their design intentions. | 0.5 | Intermediate |
| Programmable Logic Controllers (PLC's) - Hardware, Inputs, Outputs, Discrete/Analog | This interactive online course is designed to help you understand the hardware used in PLC's as well as how discrete and analog inputs and outputs permit the programmer to aid machinery in performing at a more efficient and stable state. Inputs are signals or data received by a system and outputs are the signals or data sent from it. Input/output (I/O) devices are used by a human, or system, to communicate with a computer. For instance, a keyboard is an input device for a computer, while a monitor is an output device. This course will examine the primary causes of faults associated with PLC based control systems: I/O devices and field wiring. We will discuss both hardware and software which will aid in finding these faults quickly. You will be introduced to analog inputs and outputs. These include sensors and actuators that will be of use for industrial measurements and movements. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Programmable Logic Controllers (PLC's) - Logic Operations | This interactive online course includes a comprehensive look at basic electrical circuits and includes information on converting a schematic to LAD instruction. Logic operations include any operations that manipulate Boolean values. Boolean values are either true or false and they are named after English mathematician George Boole, who invented Boolean algebra, and is widely considered the founder of computer science theory. They can also be represented as 1 and 0. Normally, 1 represents true, and 0 represents false, but it could be the other way around. | 0.5 | Intermediate |
| Programmable Logic Controllers: Human-machine Interfaces and Troubleshooting | Human-machine interfaces, or HMIs, come in many forms. Generally speaking, the simplest HMIs are the hard=wired pushbutton operator interfaces found on many machines. Other applications may use dedicated graphic interfaces or PC-based HMIs that can communicate through a network and are customized for a particular machine or process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: I/O Communication | The most visible parts of the programmable logic controller system are the input system and the output system, the I/O for short. The I/O systems are the interfaces between the PLC processor and the world. A programmable logic controller is a microprocessor-based system that operates on low voltages, typically 5 volts. The real-world devices that control machines or processes operate on a wide range of voltages and currents, as high as 240 volts AC or 125 volts DC. This course will examine the various ways in which real-world devices can be connected to the input and output systems of a programmable logic controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Installing and Maintaining | Whenever programmable logic controller s(PLC) systems are installed, whenever hardware is modified to fit the needs of changing applications, or whenever the PLC program is changed to accommodate changes in the process or machine operation, the people who do the work must have a thorough understanding of the system. Installation and maintenance in a PLC-controlled system refers not only to the PLC hardware but also to the PLC program. This course will focus on some of the basics involved in installing and maintaining PLC equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Introduction to Programming, Part 1 | Ladder diagrams have been used in machine automation and process control applications for many years. Programmable logic controllers that are programmed to run ladder diagram programs have replaced virtually all hardwired controls. PLCs are cheaper and more versatile, and most importantly, they can be made to perform different functions by simply changing their programs. Once the PLC is installed and connected to the machine or process being controlled, it is almost ready to go. The last thing that needs to be done is to program the PLC to do its job. This course will detail how to enter a simple ladder diagram program into the memory of a programmable logic controller. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Introduction to Programming, Part 2 | Ladder diagrams have been used in machine automation and process control applications for many years. Programmable logic controllers (PLCs) that are programmed to run ladder diagram programs have replaced virtually all hardwired controls. PLCs are cheaper and more versatile, and most importantly, they can be made to perform different functions by simply changing their programs. Once the PLC is installed and connected to the machine or process being controlled, it is almost ready to go. The last thing that needs to be done is to program the PLC to do its job. This course will detail how to enter a simple ladder diagram program into the memory of a PLC. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Ladder Logic and Symbology | Ladder diagrams have been used to symbolically describe electrical control (PLC) systems for many decades. Early in the development of PLCs, it was decided to use ladder diagrams in their programming interface as well. This was done so that users of PLC systems would be able to see the program in a form that they were familiar with. Virtually all PLCs still use ladder diagrams. This course examines how PLCs use ladder diagrams to perform logic functions and the symbology involved. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Networks and Network Troubleshooting | Most programmable logic controller (PLC) system problems are hardware related, and most of those are in the I/O systems. However, software and network problems do occur and are often the hardest types of problems to isolate. Isolating software and network problems takes a high degree of skill and a thorough understanding of the software tools that are available. This course will examine how to use the PLC programming software to troubleshoot software and network problems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Numerics, Part 1 | Programmable logic controllers (PLCs) use not only decimal numbers but also other numbering systems. This course covers the most widely used numbering systems, including how to convert between different numbering systems and how those numbering systems are used by PLCs in typical applications. This course will also examine codes used for storing information in PLCs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Numerics, Part 2 | Programmable logic controllers (PLCs) use not only decimal numbers but also other numbering systems. This course covers the most widely used numbering systems including how to convert between different numbering systems and how those numbering systems are used by PLCs in typical applications. This course will also examine codes used for storing information in PLCs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Program Entry, Testing, and Modification, Part 1 | Installing and maintaining programmable logic controller (PLC) systems involves working with PLC equipment and hardware as well as communications and programming software. A major part of PLC work involves installing, debugging, and changing the program, or project, in a PLC processor. In order to do this work effectively, a thorough understanding of the system and the procedures needed for program entry, testing, and modification is necessary. This course will examine the techniques used initially to install and test a PLC program as well as how to make changes to PLC configurations and programs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Program Entry, Testing, and Modification, Part 2 | Installing and maintaining programmable logic controller systems (PLCs) involves working with PLC equipment and hardware as well as communications and programming software. A major part of PLC work involves installing, debugging, and changing the program, or project, in a PLC processor. In order to do this work effectively, a thorough understanding of the system and the procedures needed for program entry, testing, and modification is necessary. This course will examine the techniques used initially to install and test a PLC program as well as how to make changes to PLC configurations and programs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Programmable Logic Controllers: Programming Functions, Part 1 | Programmable logic controllers (PLCs) have been very successful because they can effectively use bit or discrete I/O instructions to receive inputs from switches and other binary sensors and then drive output field devices such as motor contactors, solenoid valves, and indicators. But modern PLCs are able to do much more by using additional instructions to perform more sophisticated functions such as timing, counting, calculating, manipulating data, and even making decisions. This course will examine many of these non-I/O PLC instructions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Programming Functions, Part 2 | Programmable logic controllers (PLCs) have been very successful because they can effectively use bit or discrete I/O instructions to receive inputs from switches and other binary sensors and then drive output field devices such as motor contactors, solenoid valves, and indicators. But modern PLCs are able to do much more by using additional instructions to perform more sophisticated functions such as timing, counting, calculating, manipulating data, and even making decisions. This course will examine many of these non-I/O PLC instructions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Programmable Logic Controllers: Troubleshooting Hardware | The human-machine interface, or HMI, can be a very helpful aid to troubleshooting programming logic controller (PLC) hardware. By itself, however, the HMI cannot always provide information needed to troubleshoot a complex PLC system. Other aids must be used to help in hardware troubleshooting. This course will examine how to use the PLC itself, the HMI, and other test equipment to troubleshoot PLC hardware. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Project Management Essentials | Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations. | 2 | Fundamental |
| Project Risk Management | This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Project Team Management | This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization.<br>There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Property Management Safety - Employee Slips and Falls | Property management company employees work in many types of varied environments. Inside, outside, rain, snow, and wet floors are just a few of the many slip hazards they face. This training program is designed to promote awareness of slips and falls from a property management perspective. It trains your employees on various potential hazards, the importance of proper maintenance and cleaning procedures, and many other aspects of slip and fall prevention. This DVD contains both English and Spanish versions. | 0.15 | Fundamental |
| Property Management Safety - Fire Prevention | Few things can be more terrifying and catastrophic than a fire, especially in a multi-unit property environment. That is why training and education is so important. This video program trains your employees on ways fires can be prevented, conditions that contribute to fires and the steps employees can take to minimize the risk of a potential fire in a unit. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Personal Protective Equipment | During their workday, property management maintenance personnel can face many different types of safety situations. As such, it is important that they be properly trained on what Personal Protective Equipment is required and how to use it. Personal Protective Equipment is often overlooked. Failure to utilize the correct PPE can have disastrous, life-changing results. This video emphasizes to your employees the importance of making sure they have and use the proper PPE in a multi-unit complex environment. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Resident Safety | In every property management environment, nothing is more important than the safety of your residents. There a many hazards that can exist when you have a large number of people living close to each other. Fire prevention, cleanliness and maintenance are just a few of the subjects covered in this production training program. This video highlights trains your employees on the key issues relating to safety in regards to new residents. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Property Management Safety - Resident Slips and Falls | When a resident in a multi-unit property injures themselves through a slip or fall, the potential liability exposure to management is great. All property management employees must be aware of this and what their responsibilities are to keep slip and fall hazards to a minimum. With a focus on exterior and weather related hazards, this training program is designed to train your employees on what types of hazards to look for and how they should be corrected. This DVD contains both English and Spanish versions. | 0.1 | Fundamental |
| Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection | As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological, and explosive (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters. | 1 | Intermediate |
| Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters | The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks. | 1 | Fundamental |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Protecting People Against Terrorist Attacks: Structural Design Criteria | There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events. | 2 | Intermediate |
| Protecting Water Systems Through Backflow Prevention | Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system.<br>Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance. | 1 | Intermediate |
| Protecting Your Team Against Workplace Violence | Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents. | 1 | Fundamental |
| Protection Against Malware | Malware is a primary means of attack for cyber-perpetrators. This course provides staff members with an overview of basic protection against malware. Topics include: the types of malware, how malware works and protective strategies | 0.25 | Fundamental |
| Providing Performance Feedback: 01-The Power of Performance Feedback | Discover when to give performance feedback to team members and what sources to use for information. | 1 | Intermediate |
| Providing Performance Feedback: 02-Providing Verbal Performance Feedback | Practice providing verbal performance feedback to team members using key concepts in the course. | 1 | Intermediate |
| Providing Performance Feedback: 03-Providing Written Performance Feedback | Learn how to provide effective feedback in writing to empower team members. | 1 | Intermediate |
| Providing Performance Feedback: 04-Your Path to Providing Performance Feedback | Learn and apply the five-step process for providing timely performance feedback to a team member. | 1 | Intermediate |
| Providing Performance Feedback: 05-Mastering Providing Performance Feedback | Practice Providing Performance Feedback in a full scenario situation. | 1 | Intermediate |
| Providing Performance Feedback: 06-Providing Performance Feedback Health Check | Test your ability to apply Providing Performance Feedback concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Pump Basics | Pumps are used to add energy to fluids (gases, liquids, or slurries) to produce flow or increase pressure. This course discusses the construction and operation of the two most basic types of pumps: positive displacement and centrifugal. In addition to how pumps function, it is also covers some of the common terms which are used to describe pump performance. | 0.25 | Intermediate |
| Pump Types and Applications | Pumps are used to add energy to fluids (gases, liquids, or slurries) in order to produce flow or increase pressure. They can perform many different functions, including moving a fluid from one location to another, recirculating a fluid in a closed system, such as in a heating or cooling system, and providing pressure, such as in hydraulic systems. These functions are performed primarily by two different types of pumps: centrifugal and positive displacement. This module describes the most common types of pumps and their applications. | 0.25 | Intermediate |
| Pumping Stations - Pumps, Motors and Electrical Systems | Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations. | 2 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Pumps Introduction | Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Understanding the basics of fluid mechanics and the operation of different types of pumps is an essential step toward being able to understand, troubleshoot and improve a wide variety of processes.<br>This course includes a brief overview of fluid mechanics as well as the differences between centrifugal and positive displacement pumps, including their operational characteristics and applications. | 0.25 | Intermediate |
| Pumps: Fundamentals of Centrifugal Types | This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system. | 2 | Intermediate |
| Pumps: Multistage Centrifugal | This course is designed to familiarize participants with the basic operation, disassembly, and reassembly of a typical multistage centrifugal pump. After completing this course, participants should be able to describe the components and operation of a multistage centrifugal pump and explain how this kind of pump can be disassembled and reassembled when necessary. | 2 | Intermediate |
| Pumps: Operation of Centrifugal Types | This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump. | 2 | Intermediate |
| Pumps: Performance and Inspection | This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations. | 2 | Intermediate |
| Pumps: Reciprocating Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Pumps: Rotary Positive Displacement Types | This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve. | 2 | Intermediate |
| Quality Control and Assurance | This course discusses how quality control and quality assurance practices apply to virtually every task that a lab technician performs. It describes the major goals and requirements associated with quality control and quality assurance, and explains how quality control and quality assurance concerns apply to routine lab tasks, to sample handling and testing, and to documentation. It also describes audit requirements for maintaining lab quality control and assurance. (Note: Quality Control and Assurance is appropriate for most industrial labs. For labs that fall under federal regulations 21 CFR 210 and 211, which refer to drug products and bulk pharmaceutical chemicals, Current Good Manufacturing Practices may be the preferred course of instruction.)Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| R & D Chemical Hygiene | Significant injures, damage to facilities and disruption of work can occur when chemicals are not properly stored and handled. By the end of this course, you will learn about the hazards of working with chemicals in a Research and Development Laboratory. | 1 | Intermediate |
| R & D Waste Management | This course is structured to provide a general overview of waste streams that can be generated in a research and development (R & D) laboratory. Information is also provided concerning the federal regulatory agencies that oversee chemical waste in a research laboratory setting and applicable guidance from those agencies. In this interactive online course, you will learn that no matter how big or small your research laboratory, you should have a chemical hygiene plan in place to protect all laboratory personnel while they collect and handle hazardous wastes. The handling of hazardous wastes can present a physical and health hazard to laboratory workers in clinical, industrial and academic laboratories. This course will provide guidance on good work practices in the handling of the various wastes streams generated in a R & D laboratory. | 1 | Intermediate |
| Raceways | This course is designed to familiarize participants with various types of raceways used to house electrical wiring. After completing this course, participants should be able to describe various types of raceways, including conduit, wireways, and cable trays. They should also be able to describe procedures for installing raceways in various types of environments. | 2 | Intermediate |
| Radio Operation, Hardware, Telephone Systems, and Electromagnetic Waves | A radio communications system can be broken down into two parts: the transmitter and the receiver. This course will discuss the radio circuit layout, radio waves, and other radio components. | 0.5 | Intermediate |
| Radiofrequency (RF) Radiation Hazard Prevention | Radiofrequency (RF) radiation is the transmission of energy by electromagnetic radio waves or microwaves. You can't see it, smell it, hear it, or touch it, but the more you know about RF radiation, the better you will be at managing operations that produce it, and reducing the risks associated with it. Low levels of exposure to RF radiation have not been shown to be harmful, but prolonged exposure to very high levels of RF radiation can burn human tissue. No links have been proven between exposure to RF radiation and more severe health effects, like cancer or reproductive defects. Telecommunication and radar transmitters can produce high-intensity RF radiation environments that are potentially hazardous to anyone operating and maintaining this equipment. This course is designed to provide a general overview and understanding of the hazards associated with radiofrequency radiation. | 0.66 | Intermediate |
| Rail Yard Operations | Receiving and unloading coal are rail yard operations that are commonly performed by coal handlers. To help coal handlers develop the knowledge and skills necessary to work safely with rail yard equipment, this course covers basic rail yard equipment, including tracks, switches, coal cars, and locomotives. It also describes how the braking system on a coal car generally operates, emphasizes the safe working practices associated with mounting and dismounting coal cars, and covers effective communication among members of a rail yard crew. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Reading Electrical Diagrams, Part 1 | Electrical diagrams are drawings in which lines, symbols, and letter and number combinations are used to represent electrical circuits. In some plants, electrical diagrams may also be called prints, or blueprints. No matter what they are called, however, these drawings are valuable tools for anyone involved in making new electrical installations, locating electrical problems, or modifying existing circuits. There are many different types of electrical diagrams. Each type is drawn differently to provide different information. The four types of electrical diagrams covered in this course are block diagrams, single-line diagrams, schematic diagrams, and wiring diagrams. | 1 | Intermediate |
| Reading Electrical Diagrams, Part 2 | A great deal of electrical maintenance work depends on the ability of maintenance electricians to read and understand electrical diagrams. This course focuses on connection diagrams, interconnection diagrams, raceway diagrams, and logic diagrams. | 1 | Intermediate |
| Reciprocating Compressors, Part 1 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Reciprocating Compressors, Part 2 | The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor. | 1 | Intermediate |
| Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial | In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness. | 1 | Fundamental |
| Refining Basics | A refinery uses a number of processing units to transform crude oil into a wide variety of products that are marketed to customers. This course examines the basics of crude oil and how it is processed in a refinery. | 1 | Intermediate |
| Refrigerant Safety and Handling | In air conditioning (AC) and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. Refrigerants must be handled and used carefully as many of them present hazards to the environment and human health. This interactive online course discusses safe methods of working with refrigerants and refrigeration systems. | 0.5 | Intermediate |
| Refrigeration - Compressors, Valves and Piping | The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Properties | Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used. | 0.5 | Intermediate |
| Refrigeration - Refrigerant Selection | Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems. | 0.25 | Intermediate |
| Refrigeration - System Components | There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes. | 0.25 | Intermediate |
| Refrigeration - System Troubleshooting | Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance. | 0.25 | Intermediate |
| Refrigeration - Vapor-Compression Cycle | The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage. | 0.25 | Intermediate |
| Rehabilitation of Water Distribution Systems: Current Technologies | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the most current technologies to rehabilitate water distribution systems. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to identify technologies that are used to repair, rehabilitate and replace aging water distribution systems. | 1 | Advanced |
| Rehabilitation of Water Distribution Systems: Designing Renewal Projects | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through some of the key technical guidelines and standards for designing rehabilitation projects within the US. Some of these guidelines include AWWA, ANSI, ASTM and ASME standards. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to determine applicable design and QA/QC guidelines for common water distribution rehabilitation methods. | 1 | Advanced |
| Rehabilitation of Water Distribution Systems: Selecting Rehab Methods | The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the overall items that need to be considered when selecting a method to rehabilitate a water distribution system. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to select applicable technologies to be used to repair, rehabilitate and replace aging water distribution systems. | 1 | Advanced |
| Relay Basics and Types | A relay is a simple electromechanical switch designed to turn circuits on and off. This course covers relay operation and construction, the advantages and disadvantages of solid state and reed relays, and what time-delay relays are and their function. | 0.5 | Intermediate |
| Reliability Engineering Essentials | This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Reliability Essentials for Operators and Technicians | This course is intended to present the essentials of Reliability. Operators and technicians will be able to apply basic concepts related to reliability to work on system improvement, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but simple probability solutions, as they are found in the real world. | 0.75 | Intermediate |
| Resistors | This course introduces participants to the function and atomic makeup of resistors, common materials used to construct resistors, and the typical styles used in everyday applications. In addition, participants will learn about three ways to rate resistors as well as the different ways to mark resistors. | 1 | Intermediate |
| Resolving Conflicts: 01 - Characterizing Conflict | Discover the four stages of conflict and the impact that unresolved conflict can have on an organization. | 0.25 | Intermediate |
| Resolving Conflicts: 02-Know Your Conflict Behavior | Establish a collaborative conflict resolution process to encourage team member collaboration in conflict situations. | 1 | Intermediate |
| Resolving Conflicts: 03-Identifying Conflict Behaviors | Identify the conflict behavior exhibited in order to properly handle the conflict. | 1 | Intermediate |
| Resolving Conflicts: 04-Your Path to Resolving Conflicts | Learn and apply the five-step process for resolving a conflict between two or more team members. | 1 | Intermediate |
| Resolving Conflicts: 05-Mastering Resolving Conflicts | Practice Resolving Conflicts in a full scenario situation. | 1 | Intermediate |
| Resolving Conflicts: 06-Resolving Conflicts Health Check | Test your ability to apply Resolving Conflicts concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Rewarding Peak Performers | Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the businesses bottom line. | 1.5 | Intermediate |
| RFID Applications | RFID technology offers a relatively inexpensive method of tagging virtually any object and then being able to search for and identify that object. This radio-based technology, combined with computers and databases which are able to access large amounts of data, creates a tool that can increase the speed and efficiency of just about any manufacturing, warehousing, transportation, or retailing operation. Adding read/write functionality and/or sensors expands upon the number of potential applications for this technology. | 0.5 | Intermediate |
| RFID Basics | RFID stand for Radio Frequency IDentification. In RFID systems, readers use radio signals to communicate with data tags. A tag consists of an antenna connected to a data-containing integrated circuit that can be attached to almost any object, thereby giving the object a unique identification number which can be read remotely. RFID technology is used to control building access, inventory, mass transit ticketing, and highway tolls, and it is being used to increase the security of new U.S. passports. | 0.5 | Intermediate |
| RFID Implementation | Many decisions must be made when setting up an RFID system. Even after major factors like frequency of operation, reader type, and tag type have been determined, there are still a number of issues that can seriously impact a project's success. These issues deserve consideration both during installation and operation, and include reader antenna location, orientation, and connections, multipath reflection, electromagnetic interference, reader collision, and packaging considerations. | 0.25 | Intermediate |
| RFID Readers | An RFID reader sends commands and information to an RFID tag and receives information from the tag. A reader consists of a transceiver, antenna, controller, and computer interface. Readers communicate with tags using either inductive coupling or backscatter coupling. Both techniques rely on the tag modifying the electromagnetic field to send encoded information back to the reader. Besides handling radio communications, the reader is responsible for performing data verification and passing tag data to a database. | 0.5 | Intermediate |
| RFID Tags | An RFID tag consists of an antenna that is connected to a data-containing integrated circuit. These small tags can be attached to almost any object, thereby giving it a unique identification number which can be read without contacting the object. Tags can be passive, operating on the energy of the radio waves of the reader, or active, which means they are powered by a built-in battery. RFID tags come in just about every shape and size imaginable. The packaging is determined by their intended use and the frequency at which they operate. | 0.5 | Intermediate |
| Rigging for High Voltage Line Work | The purpose of this course is to teach the basic principles of rigging for high-voltage work and to demonstrate how these principles apply in three typical rigging jobs. Particular emphasis is placed on basic safety issues and on properly planning a rigging job. At the conclusion of this course, participants should be able to explain how to approach rigging near energized lines. They should understand how to plan a job and how the amount of strain involved affects the size and type of equipment selected. They should also be able to describe how to rig to remove strain from a transmission insulator. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging, Part 1 | The purpose of this course is to teach the fundamentals of overhead rigging. The topics covered include three basic elements of safe rigging, rope, knots and knot tying, use of a handline, and use of block and tackle. The course also introduces approaches to performing some basic rigging tasks. At the conclusion of this course, participants should have a basic understanding of how to plan a rigging job, how to inspect the equipment used on a job, how to tie basic knots commonly used in rigging, how to hang and use a handline, and how to hang and use a block and tackle. Participants should also be able to calculate the mechanical advantage of a block and tackle and identify the basic parts of a rope. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Rigging, Part 2 | The purpose of this course is to teach rigging skills required for tasks often performed in line work. The course demonstrates how to rig to lift a conductor and how to rig to take the strain from a conductor at a dead end. Rigging to lift and move a piece of equipment and the use of a gin pole are also demonstrated. Safety is emphasized throughout the course. At the conclusion of this course, participants should have a basic understanding of how to rig to lift a conductor, how to rig to take strain at a dead end, how to lift and move a load, and how to use a gin pole. They should understand how to maintain safe working clearances around energized lines and how to avoid overloading rigging equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Rigging: Basic Lifting | This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability. | 2 | Intermediate |
| Rigging: Ladders and Scaffolds | This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds. | 2 | Intermediate |
| Rolling Contact Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Rolling Contact Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings. | 1 | Intermediate |
| Rules for Discussing Politics at Work | It's natural to chat with colleagues at work and there's not necessarily anything wrong with a little back-and-forth about political issues. However, those conversations have the potential to go wrong pretty quickly if everyone does not stick to some basic standards. This lesson provides five rules to help keep things civil when having political discussions. These rules can help your team keep from creating an uncomfortable atmosphere when the topic of politics comes up. | 0.2 | Intermediate |
| Safe Backing of Tractor Trailer Rigs | Backing a single trailer or a set of doubles with a semi tractor is the most dangerous, intricate and time-consuming set of maneuvers a big rig driver has to master. No matter how many miles you drive forward, not one of those miles will help when it comes to backing. This program trains drivers on the mechanics and techniques required in backing large vehicles such as tractor trailers, and discusses using the _cone of visibility_ to insure safe backing. | 0.25 | Fundamental |
| Safe Bucket Truck Operations | This course covers aspects of bucket truck safety such as how to avoid accidents, how to lower the boom in an emergency, and how to carry out a bucket truck rescue. It is assumed that participants are already familiar with the basic parts and operation of a bucket truck. Participants should be familiar with all applicable safety procedures before they operate a bucket truck. The instructor should make sure that all participants wear hard hats, safety glasses, and gloves. After completing this course, participants should be able to explain how to perform a preuse inspection o f a bucket truck, describe safety considerations associated with using a bucket truck at a job site, and explain how personnel can be protected from bucket truck shock hazards. They should also be able to describe common methods of bucket truck escape, emergency boom lowering, and bucket truck rescue. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Safe Food Handling | According to the CDC, every year in the US, 48 million people are infected with a food borne illness, 128,000 are hospitalized and 3,000 people die. Nobody wants this to happen; and, with proper training in safe food handling, it doesn't have to. Food borne illnesses can be prevented by insuring your employees are properly trained on basic food safety procedures. This program is targeted at everyone involved in the preparation, handling or service of food and outlines what these basic procedures are. It can assist employers on documenting employee training if required by their local health agency.Topics covered also include:Food-borne illnessesTime and temperature controlPersonal hygienePreventing contaminationCleaning and sanitizing equipment and utensilsPreventing cross contaminationHousekeeping and maintenance. | 0.25 | Fundamental |
| Safe Work Permits | This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc. | 1 | Intermediate |
| Safety in Overhead Line Maintenance | The purpose of this course is to teach basic safety principles and practices applicable to work on overhead lines. The principles stressed are proper attitude, preplanning, care and inspection of equipment, and creation of a safe work area. At the conclusion of this course, participants should be able to recognize the electrical and structural hazards associated with overhead line maintenance and know what to do to avoid them. They should know how to identify, care for, inspect, and use the protective equipment necessary for working near energized lines and equipment. They should also know the correct procedures for working aloft, and they should understand how to perform a fast and safe pole top rescue. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Safety in Substations and Switchyards | The purpose of this course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Safety in Transmission and Distribution Maintenance | The purpose of this course is to teach the basic safety considerations involved in performing maintenance work on transmission and distribution (T&D) systems. Specific electrical shock hazards and how to avoid them are discussed. The course describes hazards that may be encountered in overhead, underground, and substation and switchyard maintenance work. At the conclusion of this course, participants should have a basic understanding of the types of hazards that may be encountered in T&D maintenance work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Safety in Underground Line Maintenance | The purpose of this course is to teach the basic safety principles and practices applicable to underground line maintenance work. The principles covered are applicable to work area safety, to the use of test equipment to ensure respiratory and electrical safety, to ensure the structural integrity of underground work sites, to the use of respirators, and to emergency responses. At the conclusion of this course, participants should be able to identify some of the hazards found in and around underground work areas. They should be able to recognize and explain methods used to provide a safe work environment. They should also be able to describe the use of personal safety equipment and identify the safety considerations involved in a typical vault emergency. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Safety Management | Managing safety is not just something that happens - it should be managed just as quality, productivity and customer-relations are managed. Senior management establishes the overall culture at every facility. This course will review the four major elements to achieve a world class safety and health program at your facility. | 1 | Intermediate |
| Safety Valves | Safety valves are commonly used in gas and steam systems to relieve excess pressure before it can cause injuries or equipment damage. Safety valves open quickly to release large volumes of gas or steam. This course is divided into two sections. Section 1: Types of Safety Valves, covers the concept of pressure and how it is measured and explores methods of relieving excess pressure through use of a rupture disc systems, relief valve systems, and safety valves. Section 2: Safety Valve Maintenance describes troubleshooting and basic maintenance procedures for a typical safety valve. The section consists of three parts:<br>External Inspection<br>Disassembly and Inspection<br>Reassembly and Testing | 1 | Intermediate |
| Safety: Electrical Part 1 - Fundamentals, Materials & Equipment Grounding | Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazardsUsing proper materials and components Equipment grounding | 2 | Intermediate |
| Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) | This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at:<br>Hazardous locations Safe working clearances Safety practices | 2 | Intermediate |
| Safety: Working with Chemicals | This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 3 | Intermediate |
| Sales 101: Appointment Making | The first step in being a successful salesperson is to have someone to sell to. In this course, professional Sales Trainer Marisa Pensa walks you through the basics of getting sales appointments, including:<br>What to say (on the phone or in person) What to NOT say (on the phone or in person) How to make effective phone calls Knowing your numbers | 1.25 | Fundamental |
| Salesforce Essentials | Everything you need to know to start using Salesforce today.<br>If your company has started using Salesforce.com and you need to get up to speed, this course is for you. In this course, Certified Salesforce Administrator, Mia Huffman, walks you step-by-step through using Salesforce for the first time. By the end of this course, you will be able to start using Salesforce to manage leads, accounts, contacts, and opportunities and track your sales activity against these objects. | 1.25 | Fundamental |
| Sample Preparation | In Sample Preparation, participants are introduced to the ways samples are prepared before they are analyzed in a lab. The course begins by explaining the importance of sample preparation and of maintaining sample integrity. The course then focuses on the major tasks associated with sample preparation and describes various common sample preparation procedures. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Saving Time in Outlook | From timewaster to productivity booster: change the way you use Microsoft Outlook. Outlook is packed with great tools but there a few that can make a tremendous difference in your efficiency. With the automating features, tasks that you do on a regular basis that can take time will become simpler and faster. Topics covered include:<br>Using Quick Steps Creating reusable text, searches, and rules to automate things you do often. Using color, rules, and the task list to highlight and make email easier to manage and organize This course is the first step in Mastering Outlook. You will be sure to want to find out more about how Outlook can help you find more hours in your week! | 0.5 | Fundamental |
| Scanning and Tracking Overview | Items need to be tracked for many reasons. In the supply chain, tracking allows a company to identify the current location of items and item counts. This information can be used to forecast item arrival date and future needs, trace items for recall and return, reduce shrinkage, and avoid counterfeit items. Accurate, up-to-date information about quantities and locations can improve the efficiency of the supply chain. This course covers tracking benefits, what to track, and other tracking information. | 0.25 | Intermediate |
| Seals: Gaskets and Packing | The purpose of this course is to examine some ways that leaks in fluid systems are controlled by the use of gaskets, packing, and mechanical seals. At the completion of this course, participants will be able to describe the components and procedures involved in working with gaskets, packing, and mechanical seals. | 1 | Intermediate |
| Security Begins At The Front Desk | Hotel Security requires the participation and cooperation of everyone on Staff, not limited to Security Personnel. Front Desk personnel are a pivotal part of the Security of your property. Front Desk personnel are often the first line of defense and have perhaps the most visible role in spotting and preventing potential threats, and reporting suspicious activity. The Security of any property is at higher risk without a vigilant Front Desk Staff. This program trains your Front Desk Associates, Bell Staff or anyone working in, around or near your properties lobby. Topics covered also include: Protecting Guest Privacy Human Trafficking Emergency Response Key Control | 0.1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Selection, Specification and Installation of Safety and Security Barriers and Bollards | The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance. | 1 | Intermediate |
| Self-checking (STAR) | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will learn to use STAR, a self-checking human performance tool, to enhance your ability to minimize errors, reduce the frequency of events, and reduce the severity of events. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Separation and Isolation of Materials | Equipment and safe procedures for separating and isolating materials using various methods are covered in this course. The basic principles and operation of a simple distillation apparatus are discussed, and gravity filtration and vacuum filtration setups and procedures are demonstrated. The course also explains the basics of extraction and describes extraction equipment and procedures. Finally, the course explains and describes a crystallization procedure. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Series and Street Lighting | Series and Street Lighting is designed to familiarize participants with electrical street lighting systems that use series alternating current (AC) circuits. The components and operation of series street lighting circuits are discussed, as well as how to identify some common street lighting circuit faults. To obtain maximum advantage from this course, participants should have an understanding of basic electrical theory and the components and operation of distribution systems. They should also be familiar with circuit and wiring diagrams. At the conclusion of this course, participants should be able to describe the design and operation of series street lighting circuits and the components that make up a series street lighting system. They should also be able to describe basic troubleshooting procedures for determining the cause of a fault in a series street lighting circuit. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Series Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. In this course, you will learn about the fundamentals of series circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Series-Parallel Circuits | The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. Components connected in parallel are connected so the same voltage is applied to each component. In this course, you will learn about the fundamentals of series and parallel circuits as well as how to calculate current, voltage, and resistance in them. | 1 | Intermediate |
| Setting and Replacing Poles | The purpose of this course is to teach how to set a pole and two methods of manual replacement of an existing pole. The most common method of setting poles using power equipment is demonstrated first. Because power equipment may not always be available or may not be able to reach the job site, two manual methods of replacing poles are demonstrated. At the conclusion of this course, participants should be able to describe and demonstrate how to set a pole using a derrick. They should be able to describe and demonstrate how to set a pole in a hole adjacent to an existing pole by rigging off of the existing pole. They should also be able to describe and demonstrate how to replace a pole with a new pole in the same hole. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Set-Up of Engineering Controls for Mold Remediation Projects | This course will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. | 1 | Fundamental |
| Seven Basic Quality Tools | The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses. | 0.25 | Intermediate |
| Sexual Harassment Awareness | In 2010, more than 11,000 sexual harassment claims were filed with the United States Equal Employment Opportunity Commission (EEOC). The EEOC states that it is illegal to harass a person (an applicant or an employee) because of that persons sex. Sexual harassment can include unwelcome sexual advances, requests for sexual favors, and other verbal or physical harassment of a sexual nature. This course defines the term sexual harassment and explains the different forms it can take. It also delves into the negative effects sexual harassment has on both an individual and on the workplace as a whole, and suggests appropriate responses to sexual harassment. | 0.25 | Intermediate |
| Shaft Alignment, Part 1 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will the cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment, Part 2 | Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment. | 1 | Intermediate |
| Shaft Alignment: Reverse Dial and Laser | This course is designed to familiarize participants with equipment and procedures for aligning shafts using the reverse dial method and using a laser system. After completing this course, participants should be able to prepare and set up equipment for a reverse dial alignment and for laser-based alignment. They should also be able to measure shaft misalignment and determine how the misalignment should be corrected. Finally, participants should be able to correct shaft misalignment so that the alignment is within specified tolerances. | 2 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Shaft Alignment: Rim and Face | This course is designed to familiarize participants with the basic principles associated with measuring and correcting shaft misalignment using the rim and face method. After completing this course, participants should be able to describe the basic types of misalignment, describe general preparations for a rim and face shaft alignment procedure, and explain how to use the rim and face shaft alignment procedure. They should also be able to explain how to use the rim and face method to measure and correct misalignment on horizontally mounted equipment and on vertically mounted equipment. | 2 | Intermediate |
| SharePoint for Site Owners | Learn to Create and Manage Your Teams SharePoint Site in Less than 90 Minutes. Now more than ever, SharePoint is a powerful and user-friendly tool for creating a common place where your team can share documents, collect data, and collaborate. In this course, you'll quickly learn how to create your own site and invite your team members. SharePoint expert, Kat Snizaski, walks you step-by-step through creating a parent site and adding subsites for multiple teams. You'll learn how to create and manage document libraries and custom lists that enable collaboration. You'll also learn how to assign user permissions and get your team rolling on their new collaboration platform! | 1.5 | Fundamental |
| Sharepoint Online Essentials | Share Files and Post Information For Your Team with SharePoint Online. SharePoint is the behind-the-scenes backbone of Office 365, but the SharePoint Online app has its own benefits. In this course, IT guru Chip Reaves demonstrates how to use SharePoint Online to create shared resources, including a shared document library, and to create internal websites to share information with your team. | 0.75 | Fundamental |
| Shop Safety | The shop. A lot of different things go on in here. What DOESN'T go on in here? It's a busy place with a variety of functions, tools, personnel and responsibilities. Perhaps the most important responsibility is safety....your safety and the safety of those working around you. Topics covered also include: Fire Prevention Electrical Safety Compressed Gas Respiratory Hazards Safe Lifting Chemicals Slips and Falls and Injury Reporting | 0.1 | Fundamental |
| Single-Phase AC Induction Motor Maintenance | Most single-phase alternating current (AC) motors are small-horsepower motors designed to operate on standard single-phase AC current. They are found in a number of home and industrial tools, including vacuum cleaners, can openers, power saws, drills, and fans. Electrical maintenance personnel are responsible for keeping the single-phase motors in their plant in top operating condition and for repairing them correctly and quickly if the need arises. This course explains how single-phase AC induction motors operate and how they are classified. It also covers some common procedures for testing and maintaining them. | 1 | Intermediate |
| Site Utility Design: Commercial Buildings | This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Skype for Business Essentials | Chat, Call, And Videoconference With Ease Using Microsoft's Business Communication App! Skype for Business is an incredibly powerful communications tool, used for everything from simple chat conversations to webinars for 10,000 people, and can even replace a business's phone system. | 0.3 | Fundamental |
| Sliding Surface Bearings, Part 1 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Sliding Surface Bearings, Part 2 | This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings. | 1 | Intermediate |
| Smart Business Writing: 4 Stages to Writing Your Best | Some people thinks that in the grand sceheme of things, excellence in writing isn't all that important as long as you get the General idea across. But the sentence above is a perfect illustration of why that simply isn't true: Did it make you wary to see that the first sentence of a course intended to teach you writing tips was full of errors? Good writing gives you and your ideas authority, visibility, and stature. Bad writing, on the other hand, can make readers question your credibility and/or expertise, can be costly to a business, and can even damage the career of the writer. Inefficient, unclear, misleading, irrelevant, sloppy or deceptive written communication costs companies across the board billions each year. This course will help you improve your skills and avoid careless errors by focusing on four stages of writing: preparing, planning, drafting, and editing (revising and finalizing). | 1 | Intermediate |
| Smart Business Writing: Emails & Technical Proposals (RV-PGM139) | This interactive online course is presented in two modules:<br>How to Write Powerful & Persuasive Emails<br>Tackling the Technical Proposal<br>This course covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. The second lesson discusses writing business and technical proposals and focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. | 1 | Intermediate |
| Smart Business Writing: How to Write Powerful & Persuasive Emails | Writing an email is the same as any other form of correspondence, only faster and a lot less formal, right? Wrong. Almost every professional today is faced with the seemingly simple task of writing emails but there are specific considerations that apply to email that we should always consider before we hit Send. This 1/2-hour online interactive course from SmartTeam teaches you the specifics for using electronic mail to focus and present information effectively. It covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. You'll also learn what the differences should be between composing an email that tells information and email that sells; how to use the Pyramid writing plan for maximum efficacy in getting your message across, and perhaps the single most paramount rule in email writing: Pause before you hit Send! | 0.5 | Intermediate |
| Smart Business Writing: Short, Sweet and To-the-Point Reports | If the skills you'd acquired by the time you wrote your last book report for school aren't cutting it for you in the business world, this course can teach you what you need to know. Almost every professional has to write a short report at some point in his or her career, and despite the fact that it doesn't have to be long, it can still be daunting - especially if you don't like writing. This interactive online course will teach you to use the simple and extremely effective Pyramid method of writing to create the most common types of reports professionals will be faced with in their careers. | 1 | Intermediate |
| Smart Business Writing: Tackling the Technical Proposal | Proposals are an integral part of the professional world. Proposal topics can range from a request for more department funding to a plan for redesigning a highway. Regardless of the subject, proposals are intended to persuade. A poorly written or dull document that doesn't present the critical components in logical order can mean your presentation or request is brushed aside or not taken seriously. This 1/2-hour interactive online course on writing business and technical proposals focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. Once you have successfully completed this SmartTeam course, you will have the tools to significantly improve your proposal writing skills and help ensure the success of your company. | 0.5 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Business Writing: Writing Effective Emails | In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language. | 0.5 | Intermediate |
| Smart Certificate: A Comprehensive Sales Program | In this comprehensive sales certificate you'll get everything you need so you can start making sales fast. You'll learn how to approach cold calls, create winning phone scripts, how to identify qualified prospects and most importantly how to close the sale. Additionally you'll get a course on B2B sales as well as a course on the complete sales cycle. Whether you are a seasoned pro or a budding sales superstar this comprehensive sales certificate has everything you need to start selling today. The courses contained in the certificate are: Smart Sales 1: Understanding the Psychology of SalesSmart Sales 2: Naming the Decision Maker & Setting AppointmentsSmart Sales 3: Holding Appointments & Advancing the SaleSmart Sales 4: Dealing with Objections & Closing the SaleSmart Sales 5: Business-to-Business SalesSmart Sales 6: The Sales Cycle | 3 | Fundamental |
| Smart Customer Service 1: Courtesies, Attitude, and Ethics | You are the face of your business; therefore, your company depends on you to present yourself well at all times. This interactive online course is designed to help you understand how to do that. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. | 0.5 | Intermediate |
| Smart Customer Service 2: Listening for Understanding | As a frontline employee you are the primary source of communication between your company and its customers. You can improve your ability to interact well by developing listening skills. When you hear and interpret a message correctly, you will be able to understand your customers' requests and that is the key to handling each and every customer successfully. This interactive online course is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone. | 0.5 | Intermediate |
| Smart Customer Service 3: Effective Verbal and Nonverbal Communication | Communication is the give and take exchange of information; therefore, effective verbal and nonverbal skills are crucial to understanding your customers completely. In the previous course in this series, you learned about listening for understanding, or the taking of information. In this course you will learn how to give information effectively by speaking well and using your nonverbal signals to enhance your message. This interactive online course is designed to help you improve your communication skills when you are the sender of the message, whether you handle customers face-to-face or by telephone. | 1 | Intermediate |
| Smart Customer Service 4: 3 Steps to Successful Customer Interaction | In this lesson you will learn how to combine the basics of customer service that will help you interact well with your customers: how to present yourself well, listen for understanding, and communicate effectively to complete your customer interactions successfully. Every customer interaction involves three important steps that need to be completed in order to satisfy customers. This interactive online course is designed to help you to fully understand these three steps so that you will complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options. | 0.5 | Intermediate |
| Smart Customer Service 5: Handling Customer Complaints | This interactive online course is designed to help you understand why customers may complain, uncovers the special skills needed for handling customer complaints, and teaches an easy to learn step-by-step method for handling these types of customer contacts. At the end of this course you will apply the skills to your work environment to successfully handle any customer in any situation. | 1 | Intermediate |
| Smart Customer Service: Courtesies, Attitude, Ethics and Listening for Understanding | This two part course discusses Smart Customer Service. Part One is designed to help you understand how to present yourself well at all times. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. Part Two is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone. | 1 | Fundamental |
| Smart Customer Service: Courtesies, Listening for Understanding for Successful Customer Interaction (RV-PGM140) | This interactive online course is presented in three modules: Courtesies, Attitude, and Ethics Listening for Understanding 3 Steps to Successful Customer InteractionYou will learn how to combine the basics of customer service, how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. It will also help you improve your listening skills, and teach you to complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options. | 1 | Intermediate |
| Smart Finances: Creating a Budget that Works for You | A budget can be a very effective financial tool. If used correctly, it can help you determine where your finances are, and forecast where they need to be. With the economy chugging slowly toward recovery, it's important to get a handle on your spending so you can make the best choices when allocating your money. A good budget plan is one that makes sense to you, and one that YOU KNOW you will be able to maintain. This interactive online course will help you take a step towards doing just that. By discussing best practice methods and methodologies that have proven fruitful for many formerly harried individuals, you will learn tested strategies for establishing and maintaining a budget that works for you. | 1 | Intermediate |
| Smart Health: Best Practices to Help You Quit Smoking | According to the Centers for Disease Control and Prevention, cigarette smoking accounts for approximately 443,000 deaths every year in the United States—roughly one out of every five people. It is the leading cause of preventable death among Americans, yet an estimated 46 million U.S. adults continue to smoke, and an alarming number of young adults and teens are following suit. Quitting smoking is the single best thing you can do to protect and improve your health and the health of those around you, and those who are able to quit greatly reduce their risk for heart disease, stroke, cancer and other tobacco-related health illnesses. Although quitting isn't easy, it is possible with the right combination of knowledge, support, and aids/medications. This interactive online course provides the latest in evidence-based research on proven practices and coping strategies to help you quit smoking. All the information is presented in an easy-to-follow format that will walk you through the key elements you need to quit smoking forever. | 3 | Intermediate |
| Smart Health: Child Nutrition - How to Avoid/ Prevent Childhood Obesity | Childhood obesity is alive and real. In fact, it is triple the rate from just one generation ago. While there are several causes of obesity in today's youth, the possibilities for prevention are literally endless! By teaching your child how to make healthier food choices and encouraging active play (yes, play!), you can help him or her grow into a fit and healthy adult. What a gift! | 1 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Health: Drinking Responsibly | Drinking responsibly has a number of benefits, such as stress reduction, enhanced mood and improved mental health, the experience of pleasure, increased creativity, social benefits, and positive effects on quality of life. Your ability to drink responsibly depends on genetics, age at which you started drinking, culture, family environment, and mental health. This interactive course provides you with tips for drinking responsibly, as well as what drinking responsibly involves, and does not involve.. | 1 | Intermediate |
| Smart Health: Eating Right | In a world of fad diets, quick fixes and fast food, eating right and staying healthy can be a real challenge. The goal of this course is to give you all the tools you need to get all the good nutrition your body requires to maintain a lifetime of health and wellness. If you want to shed unwanted pounds, you can use these guidelines to reduce your caloric intake, increase your activity and reduce your consumption of fat and sodium in the process. | 1 | Intermediate |
| Smart Health: HIPAA Privacy Standards for Everyone | We all have personal health information, and many of us are responsible for the health and personal information of others. Most of us agree that information should be private and therefore, protected. The HIPAA Privacy Standards were created for that purpose. Criminal charges can be brought against anyone in healthcare who is not in compliance. You can be knowledgeable and better protected by being familiar with these standards. This interactive course gives you definitions and ways to recognize non-compliance. We'll discuss how to protect private health information and we'll give you examples of situations you could face and how to handle them correctly. | 1 | Fundamental |
| Smart Health: Managing Your Cholesterol and Blood Pressure | Are you one of the 1 in 3 adults suffering from high blood pressure or high cholesterol? If left untreated, both can cause serious harm to your health—including heart disease and stroke! Did you know there are simple, painless steps you can put into practice today to improve your numbers? The power to achieve a healthier body is in your hands! | 1 | Intermediate |
| Smart Health: Physical Fitness - Choosing an Exercise Plan That's Right for You | Every time you turn around it seems that there is a new fad, diet, or piece of exercise equipment on the market. With so many things to choose from, how do you know where to begin? The goal of this course is to introduce you to the basics of exercise, and provide you with a program that will help you take that first step toward fitness. We will look at the physical and mental benefits of excise, and discuss how to create a successful exercise program that you can use to get started. | 1 | Intermediate |
| Smart Health: Proper Posture and Breathing | Poor posture, typically defined as having excessive curvatures of the spine, slumped shoulders and a forward projecting chin, are common ailments in today's society. Improper posture inhibits proper breathing patterns by limiting the room the diaphragm has to push down into the abdomen to make room for the lungs. And breathing is one of the basic requirements of life; it is the first thing we do when we are born and the last thing upon death. Each minute, the average person breathes 12 times, inhaling oxygen and exhaling carbon dioxide. These processes are controlled by the autonomic nervous system and unless you are actively listening to or watching for breathing, you are essentially unaware of it. | 1 | Intermediate |
| Smart Health: Sleeping - How to Ensure You Are Well-Rested & Energized | Do you take sleep for granted? Many of us can fall asleep quickly anywhere while others struggle. If you want information about proven tools for getting the rest you need, this is the course that will supply your wish list.<br>You will get foundational information, myth busters, and facts. You will also receive tools and methods from experts to use in your individualized solution for a good night's sleep. | 1 | Intermediate |
| Smart Health: Yoga & Meditation - Finding your Inner Chi | Yoga is a form of exercise that can be used to reduce stress in our lives. Benefits include improving posture, learning better breathing and relaxation techniques, and balancing the Chi using exercise. In this course, you will learn ways of finding stillness, the 7 chakras, and the meditation techniques associated with each. | 1 | Intermediate |
| SMART Instrumentation in Biological and Chemical Treatment | What is SMART instrumentation? The definition and implementation of SMART Instrumentation has evolved over the past five or six decades to its present state where we can literally and figuratively put cruise control on a bicycle; however, it does not ride itself. Proper implementation of a monitoring and control scheme for even a very small system can generate terabytes of useful information per year, all of it meaningless unless correlated, analyzed, trended, structured, and most importantly, acted upon. In this interactive online course, we will discuss the quality and performance specifics, operational reliability, environmental safeguards, and safety risks for control and monitoring systems using SMART instrumentation. We will also cover the reduced costs that can be obtained using SMART instrumentation. | 1 | Intermediate |
| Smart Leadership: Leaders, Model the Way (RV-PGM141) | This interactive online course is presented in two modules: Smart Leadership: What Leaders Do, Smart Leadership: Model the Way Introducing the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage and uses actual case examples from real people who have achieved remarkable success. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speech writer, or mimicking the language of some other leader who's nothing like you. | 3 | Intermediate |
| Smart Leadership: Leadership Qualities (PGM142) | This interactive online course is presented in two modules: Smart Leadership: Inspire a Shared Vision Smart Leadership: Encourage the Heart Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. In Encourage the Heart. you'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. | 3 | Intermediate |
| Smart Leadership: Part 1 - What Leaders Do | Extraordinary results can occur in an otherwise ordinary setting, and the objective of this course is to help you to create the conditions that lead to those results. Leadership development is ultimately self-development, and this series of SmartTeam courses will help you meet that daily challenge. Leadership is not the private reserve of a few charismatic men and women - it is a process that ordinary people use when they are bringing forth the best from themselves and others. This series will inspire you to create a workplace that rejoices in celebration and encourages the best efforts from everyone. This interactive online course introduces the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage for the remaining courses in the series and uses actual case examples from real people who have achieved remarkable success. You'll also find out what four qualities - from among 225 traits - people consistently look for in a leader they would willingly follow. This course series is adapted from the extensively researched and highly respected book, The Leadership Challenge, by James Kouzes and Barry Posner. It is recommended that you take this course before attempting later courses in the series. | 1.5 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Leadership: Part 2 - Model the Way | What do Abraham Lincoln, Martin Luther King Jr., Susan B. Anthony, César Chávez, the Dalai Lama, Eleanor Roosevelt, Mother Teresa, and Archbishop Desmond Tutu have in common? They all have, or had, strong beliefs about matters of principle and an unwavering commitment to a clear set of values. They all are, or were, passionate about their causes. Another thing they have in common is that while each of these people may have quoted someone else from time to time, they are all people who are more often quoted themselves. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you. And people most admire those who best articulate the principles they believe in. You can begin to achieve these aims by exploring the first of the five practices of exemplary leadership: Model the Way. This is the second in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner. | 1.5 | Intermediate |
| Smart Leadership: Part 3 - Inspire a Shared Vision | When the byproducts of a Ben & Jerry's ice cream plant overloaded a local waste treatment plant and nearly had to shut down, administrative assistant Gail Mayville found an unorthodox solution that saved people's jobs, kept the plant open, and jump-started a new and rewarding career. What Gail and thousands of other leaders share is the characteristic of being forward-looking - of being concerned not just about today's problems but also about tomorrow's possibilities. They see something out ahead, vague as it might appear from a distance, and they imagine that extraordinary feats are possible and that the ordinary could be transformed into something noble. Find out how Gail solved the problem - and why leaders need to be able to look beyond the present moment to see an ideal version of the future. This SmartTeam course - which focuses on the third principle, Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. This is the third in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner. | 1.5 | Intermediate |
| Smart Leadership: Part 4 - Challenge the Process | If you keep your eyes open and periodically actually shut your mouth, and you have the courage to turn the mirror around on yourself, it's amazing what you can learn and how you can change things. - Dick Nettell, corporate services executive for the Bank of America. The leaders whose stories we excerpt talk about times when they turned around losing operations, started up new plants, developed new products or services, installed untested procedures, renewed operations threatened with closing, or released the creative spirit trapped inside stifling bureaucratic systems. The personal-best leadership cases were about radical departures from the past, about doing things that had never been done before, about going to places not yet discovered. In many cases, the magnitude of results was in the hundreds of percent. In this SmartTeam course, Challenge the Process, you'll see how leaders understand that change is a constant, and proactive individuals seize the moment and use times of change to create something better than previously thought possible. This is the fourth in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner. | 2 | Intermediate |
| Smart Leadership: Part 5 - Enable Others to Act | In the thousands of cases the course authors studied, they did not encounter a single example of extraordinary achievement that occurred without the active involvement and support of many people. Nor was there a single instance in which one talented person - leader or individual contributor - accounted for most, let alone 100 percent, of the success. Throughout the years, leaders from all professions, from all economic sectors, and from around the globe continue to say, You can't do it alone. Leadership is not a solo act, it's a team effort. This part of the series will teach you about the importance of fostering collaboration (and the methods for doing so), along with ways to empower and strengthen your team. This is the fifth in a series of SmartTeam courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner. | 2 | Intermediate |
| Smart Leadership: Part 6 - Encourage the Heart | Most people rate having a caring boss even higher than they value money or fringe benefits. In fact, how long employees stay at a company and how productive they are there is determined by the relationship they have with their immediate supervisor. This segment in the Leadership Challenge Series covers the last - but in no way least important - practice of exemplary leadership, Encourage the Heart. You'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. Exemplary leaders keep four essential points at the fore: focus on clear standards, expect the best, pay attention, and personalize recognition. Learn how to put these points into practice to stimulate and motivate each individual on your team! This is the sixth and last in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner. | 1.5 | Intermediate |
| Smart Management: Methods for Motivating and Mentoring Your Team | Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company. | 2 | Intermediate |
| Smart Management: Business Essentials | You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind. | 2 | Intermediate |
| Smart Management: Coaching for Better Performance | There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as The Boss and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a coach. Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan. | 1 | Intermediate |

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# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Management: Data Security | Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information. | 1 | Intermediate |
| Smart Management: Discrimination in the Workplace for Managers | As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination. | 1 | Intermediate |
| Smart Management: Effective Performance Review Practices | Studies show that well over 90% of organizations engage in a formal employee Performance Review (or Appraisal) Process, but the practice is highly varied between companies - and sometimes within a single company - in both the way it is conducted and its effectiveness. In fact, Performance Review is often dreaded by both managers and employees. One reason is that managers often lack skill in objectively evaluating and providing useful feedback to employees. The purpose of this interactive online course is to equip managers to engage in effective employee performance reviews that will help employees understand and maximize their performance. We will also show how employees can best participate in the process. When done effectively, the Performance Review will have a positive impact on the motivation and performance of employees and their managers and will benefit the entire company. | 2 | Intermediate |
| Smart Management: Equal Employment Opportunity and Diversity for Managers | As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce. | 1 | Intermediate |
| Smart Management: Getting the Most out of a Multigenerational Workforce | Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them tick. This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just well but with excellence. | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Customer Service | Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position. | 1 | Intermediate |
| Smart Management: Hiring the Right Talent - Sales | Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position. | 1 | Intermediate |
| Smart Management: How to Handle Workplace Challenges | Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles. | 1 | Intermediate |
| Smart Management: Key Skills for Managing & Coaching Your Team | Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, Take Care of Yourself. | 0.5 | Intermediate |
| Smart Management: Lawful Hiring Practices | The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts. | 1 | Intermediate |
| Smart Management: Lawful Termination Practices | There comes a time for every manager when they are faced with the need to terminate an employee. The difficulty comes with ensuring that the company is in a position that prevents any liability on their part for that termination. Unfortunately in today's legal climate, wrongful termination suits are the number one labor lawsuit brought before the courts. The judicial system sees many of these cases, especially when economies experience a downturn and employees struggle to keep their jobs.<br>This interactive online course outlines the criteria for legal termination, and explains how to ensure your company is prepared. Proper procedures need to be in place, and managers need to be knowledgeable of employment laws and the consequences for wrongful termination. | 0.5 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Management: Managing a Geographically Distributed Workforce | It is becoming increasingly rare in today's business climate for all team members to be located centrally or working from a single office. Whether it is satellite offices, team members working at home, or offsite third party vendors, the workforce of today is more than likely dispersed among a variety of offices in separate locations. In this interactive online course, we will examine the factors that necessitate a remote and often globally distributed workforce. We will also discuss best practices for managing offsite teams and pitfalls to avoid in the process. | 0.5 | Intermediate |
| Smart Management: SMART Goals - Setting Effective Targets for Success | Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success. | 1 | Intermediate |
| Smart Management: Successfully Transitioning from Team Member to Manager | Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader.<br>During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed. | 1 | Intermediate |
| Smart Management: The Art & Science of Delegation | Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tell us when others can do needed activities, faster, cheaper, and better than we can ourselves.<br>The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects. | 1 | Intermediate |
| Smart Mental Health: Core Values and Finding a Purpose in Life | If you ever felt uncomfortable in a relationship or out of place in your company but didn't know why, it could be that the person or the corporation has core values that are different from yours. If this situation sounds familiar, or if you'd like to know more about values and how to get clearer on your life's purpose, then this is the course for you. We will guide you to define your core values and your life's purpose, and explore practical ways to create a personal and professional life in harmony with the inner you. | 1 | Intermediate |
| Smart Mental Health: Goal Setting and Visualization Techniques | Goal setting is the foundation of all successful endeavours. When we set a goal, what we are really doing is defining the roadmap of our life. With each goal we set, we establish the path we wish to take towards our objectives. | 1 | Intermediate |
| Smart Mental Health: Happiness is a Choice - Keys to Living a Joyful Life | This course will take us on a journey through five core areas of our human experience: the physical, the psychological, the spiritual, the social, and the occupational elements of being human that make up our lives. In each area we will learn about a tried and true pathway leading to greater happiness. For each of these pathways, we will offer tips and tools to help implement strategies to build happy and contented lives. | 1 | Intermediate |
| Smart Mental Health: Keys to Successful Parenting | Understanding the common pitfalls of parenting, how to provide constructive discipline, and how to develop a healthy relationship with your child are just a few ways to identify areas for connection and improvement. This course is intended to help you as parents not only define your role and style, but to improve upon problem areas. You will be able to identify with the content and then think about how you can apply it to your own experience.<br>Most parents recognize that this role can be a challenging one and that those who serve in it are often a work in progress. Identifying areas for improvement and understanding what it takes to raise successful children is pivotal. You will get examples to consider what you can do to be more helpful to your children, create a loving and nurturing environment, and help their development in the most effective way possible. | 1 | Intermediate |
| Smart Mental Health: Managing Anger and Emotions | The modern workplace is often thought of as a strictly professional, rational, logical environment. Cooperation is key—personal opinions and emotions must be put aside in the name of teamwork, which may be easier said than done! No one can expect to connect with fellow colleagues the way they do their own friends or family members. One crossed word or bad mood can damage corporate relations, sometimes irreparably. The uncertainty of the business environment of today, and resulting stress that follows only adds to the pressure workers feel in performing their level best. Feeling overworked and overwhelmed is natural in the workplace, especially when it comes to dealing with change. The purpose of this course is to illustrate ways you can overcome the emotional barriers you may face in the workplace. This course will guide you through various exercises and give you tips to help you manage your emotions at work so you can perform to the best of your abilities. | 1 | Intermediate |
| Smart Mental Health: Reducing Stress and Anxiety | Stress is our body's way of responding to physical, emotional, or mental demands. Although typically associated with negative circumstances, stress can be caused by both good and bad experiences. Our bodies react to stress by releasing chemicals into the blood to give us energy and strength to handle the situation. This evolutionary reaction can be a good thing when stress is caused by real physical danger; however, this survival response can wreak havoc if it builds up without a proper outlet. This interactive online course discusses signs and symptoms of stress, and explains the physical and emotional effects of built up stress, such as pain and anxiety. The course also describes stress management techniques, treatment options, and lifestyle changes to help alleviate stress. | 1 | Intermediate |
| Smart Quality: Building Quality Awareness | You expect quality from your vendors and your customers expect quality from you and your organization. In this SmartTeam course we will familiarize you, regardless of your level in your organization, with the meaning of quality, how it is critical, and how to begin to put it into motion in all of your work. | 1 | Fundamental |
| Smart Quality: Process Improvement | All work is a process—plain and simple. A process is a series of events, activities, decisions, or tasks that transform inputs into outputs. Processes can be very large, crossing many functions within your institution or organization; or small, existing within a department or unit. Smaller processes exist within the context of larger processes. It is imperative as you start that you are careful in what processes you select for improvement. This interactive online course discusses selecting, monitoring, and improving processes so you will be able to provide your products or services accurately and on time. | 0.5 | Fundamental |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Quality: Systematic Problem Solving | All organizations are challenged by problems that need to be fixed. You can become a master troubleshooter and problem solver. In this interactive online course we will instruct you in successful systematic problem solving, giving you methods and tools that you can use regardless of your position or organization. | 0.5 | Intermediate |
| Smart Sales 1: Understanding the Psychology of Sales | Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 2: Identifying the Decision Maker & Setting Appointments | Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 3: Securing Appointments & Advancing the Sale | Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 4: Overcoming Objections & Closing the Sale | Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 5: Business-to-Business Sales | Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales 6: The Sales Cycle | Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Closing the Call | Never has so much been written or talked about in prospecting and selling as closing or asking for the sale. Quite frankly, closing is easy and simple. In this eighth course in a 10-part series, you will learn how to implement an effective consultative process that will help you successfully close the call. The purpose of this course is to provide you with simple and effective techniques to move the sale forward and achieve your sales objective. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Creating Opening Statements | Without a doubt, the opening statement is the most important part of your tele-prospecting call. This third course in a 10-part series helps you develop an effective opening statement that will get more prospects to stop and listen. This course provides you with a process by which to develop an effective opening statement, including templates that you can use as models for those opening statements. By immediately gaining the attention and interest of the decision maker, you will quickly get your foot in the door so you can meet and exceed your sales objectives. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Dealing With Dismissive Objections | One of the most significant components of tele-prospecting is handling knee jerk objections. Decision makers may not want to be bothered, so objections may be tossed out at the beginning of the call to get you off the phone. If you aren't prepared to field these questions effectively, your opportunities to set appointments and sell will be greatly diminished. The purpose of this fifth course in a 10-part series is to help you overcome objections and continue the sales dialogue so that you can achieve your sales objective. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Follow-up Strategies and Tactics | In many ways, the follow-up call is far more significant than the cold call. This is where value is created, where trust is further established with your prospect, and ultimately, where the rationale for buying is formed. Despite the importance of the follow-up, many tele-prospectors lack skill in this arena. In this ninth course in a 10-part series, we will discuss follow-up strategies and tactics to master the art of follow-up and close more sales. The goal of this course is to provide you with a follow-up strategy to help continue the sales cycle and ultimately close the sale. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Getting Past Gatekeepers | The key to successful tele-prospecting is getting through to as many decision makers as possible. Unfortunately, human and electronic gatekeepers are often used by the decision maker to screen your calls. The purpose of this course is to provide you with strategies and tactics to get past these gatekeepers so you can reach your target and achieve your goals. This second course in the 10-part series covers a variety of methods and techniques that you can test, employ and master to improve your efficiency and effectiveness. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Handling Smokescreen and Authentic Objections | Objections come in all shapes and sizes and some are easier to distinguish than others. While many objections are clear cut indicators of disinterest, others may be more vague and harder to discern. In this seventh course in a 10-part series, we will look at how to recognize and handle ambiguous objections effectively. The purpose of this course is to provide you with various tactics to help understand and manage both smokescreen and authentic objections, ultimately giving you greater confidence in dealing with your prospects and moving the sales cycle forward. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Overview and Pre-Call Planning | This first course in a 10-part series introduces you to the process of tele-prospecting and shows you how to begin using this method to effectively and efficiently mine for prospective clients. This questions-based, consultative approach to tele-prospecting is designed to get the client involved to determine needs, or potential needs. This course is for anyone who uses the telephone to qualify prospects, generate leads, set up appointments, or sell direct. The overall goal of this training series is to provide you with tips, tactics, and processes to maximize your tele-prospecting potential, and increase your success at prospecting by making you more effective on the phone. In short, it is to make you a better prospector and salesperson. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Presenting an Offer | Your offer, or sales message, is your opportunity to present your solution to the prospect and ultimately close the deal. To be effective, your message must be compelling and intriguing, and it must provide a reason for the prospect to take the next step. This sixth course in a 10-part series discusses how to present an effective offer or sales message. The purpose of this course is to provide you with the skills and techniques to craft and deliver a persuasive sales message that motivates prospects to take action. | 0.5 | Fundamental |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Sales: Advanced Tele-Prospecting - Qualification and Questioning | Effective questioning is at the very heart of the advanced tele-prospecting process — it is what separates tele-selling from tele-marketing. Effective questioning is what creates a quality lead, a good appointment, or a very good sale. This fourth course in a 10-part series discusses how to use questioning to identify needs, build rapport, and advance the selling process. The purpose of this course is to provide you with specific skills and techniques so you will question more effectively over the phone. | 0.5 | Fundamental |
| Smart Sales: Advanced Tele-Prospecting - Using Email in the Tele-Prospecting Process | There is little doubt that email is one of the primary methods of communicating with a decision maker, so it makes sense to have an email component in your tele-prospecting approach to the marketplace. The trick is to develop a good email that cuts through the clutter so it will be read and remembered by your prospect. This final course in a 10-part series discusses how to sell more by integrating email into your tele-prospecting process. The purpose of this course is to provide you with specific strategies and tactics on how to use email and voice follow-up effectively, while also providing you with email templates you can use to craft your own personal email message. | 0.5 | Fundamental |
| Smart Time Management: 7 Steps to Regaining Control of Your Day | Feeling out of control and overwhelmed by everything you need to accomplish each day? No matter how hectic your schedule appears, you can regain control of your day and increase your daily productive time. How? Effective time management is your tool to design success at work and at home. This interactive online course details a complete, integrated time management system. This system contains just seven steps, which will assist you in developing an effective and efficient method for allocating time and regaining control of your life. In addition to honing your prioritization skills, you will also learn how best to use your reclaimed time and how to periodically reassess your time management process so you can maintain control of your day. | 1 | Fundamental |
| Smart Time Management: The 80/20 Rule for Making Every Minute Count | In 1897, Italian Economist Vilfredo Pareto found that 20 percent of any given population, of any country during any time period, accounted for 80 percent of the wealth. This pattern is repeated in many aspects of life, not just wealth. The 80/20 Rule as applied to time management reveals that there is generally a significant imbalance between our efforts and our results. Instead of there being a one-to-one relationship between effort and result, it turns out that 20 percent of our efforts produce 80 percent of the results. Conversely, the other 80 percent of our efforts produce only 20 percent of the results. This 1-hour interactive online course from SmartTeam explores how we can channel our time and effort to get the greatest results with the least amount of effort and stress. It focuses on your individual abilities, and teaches an entrepreneurial time management approach together with creative use of the 80/20 Rule. In other words, it will help you prioritize so that you do most often the things you are best at and enjoy the most. You will learn to strive for excellence in a few things, rather than achieving mediocre performance in many. | 1 | Fundamental |
| Smart Workplaces: Code of Conduct - Ethics Education & Social Media Guidelines | At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination. | 2 | Intermediate |
| Smart Workplaces: Designing Safe Workspaces & Preventing Injury | Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more. | 1 | Fundamental |
| Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146) | Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals:<br>Build and maintain a broader network of trusted professionalsGenerate leadsLearn about other companies and their hierarchiesLeverage powerful tools to find and reach the right peopleTap into the knowledge of their network, andDiscover new opportunities<br>This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn. | 0.25 | Fundamental |
| Smart Workplaces: Preparing for a Pandemic Flu Outbreak | What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies?An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff. | 1 | Intermediate |
| Smart Workplaces: Putting Your People First - Personnel Administration | The most important resource available to any organization is people. Organizations are made of people, and an organization cannot fulfill its intended mission without good employees. These employees need effective leadership to accomplish organizational goals and objectives. A good leader knows how to hire and keep good employees by following the rules and regulations that govern employment. This interactive online course will discuss several personnel issues of interest to all organizations. Whether you have 10 employees or 200 employees, just about every issue discussed in this SmartTeam course will, in some way, apply to your business. Issues discussed in this course include: Personnel Administration (Management and Leadership, Hiring and Firing Practices, and Employee Manual/Handbook)Sexual Harassment Equal Employment Opportunity (EEO) Drug Free Workplace The Americans with Disabilities Act of 1990 (Including 2008 amendments) | 2 | Fundamental |
| Smart Workplaces: Responsible Social Media for Team Members | It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies. | 0.5 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158) | There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women. | 0.5 | Fundamental |
| Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145) | Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls. Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected. | 0.5 | Fundamental |
| Sources of Electricity, Part 1 | Sources of electricity typically refer to the different types of fuel or power used to generate electricity. With the exception of solar power, these sources all involve spinning a copper wire between magnets. This course describes how electricity is produced through electrochemical production, magnetic induction, and the photoelectric effect. | 1 | Intermediate |
| Stackers | Plants that burn coal typically store their coal in outdoor piles. To move the coal to the storage pile, a machine called a stacker is often used. An important aspect of coal handling is operating a stacker, coordinating its operation with the rest of the coal handling system, and keeping it in good working condition by performing regular inspections and minor maintenance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Statistical Process Control, Part 1 | An important goal of every process plant is to produce a quality product at the lowest possible cost. In this course, you will explore how statistical process control, or SPC, can be used to help maintain consistent quality and reduce costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Statistical Process Control: Basic Control Charts | This course is designed to familiarize participants with some of the basic control charts used in statistical process control (SPC). After completing this course, participants should be able to describe the characteristics of X-bar charts, R charts, moving X-bar charts, moving R charts and individual X charts. They should also be able to explain what each chart represents and how to plot values on each chart. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Statistical Process Control: Introduction | This course is designed to familiarize participants with the basic principles of statistical process control (SPC). After completing this course, participants should be able to explain what SPC is and how SPC can be applied to a process. They should also be able to describe the basic elements of an SPC control chart and relate an SPC control chart to an X-Y graph and to a normal distribution curve. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Statistical Process Control: Process Variations | This course is designed to familiarize participants with some basic techniques for using statistical process control (SPC) to recognize and respond to variations in plant processes. After completing this course, participants should be able to describe how plotted values on control charts can be interpreted, describe how an operator can use SPC to recognize and respond to out-of-control conditions and process instability, describe basic considerations for using SPC with a computer, and explain how to use various types of attribute charts. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Steam Turbine Mechanical Drives | The steam turbine generators used today produce approximately 85% of the electricity in the United States. In a typical turbine, steam flows in at a speed near 100 miles per hour and at temperatures from 400 to 950 degrees Fahrenheit. This course describes the differences between Impulse and Reaction turbines, how steam turbines are classified, and some typical operational issues associated with steam turbines. | 0.25 | Intermediate |
| Steam Turbines | Equipment such as pumps, compressors, and fans is essential to the operation of an industrial facility. Before this equipment can operate, however, it must be supplied with power. Although electric motors are among the most common means of supplying the power necessary to drive equipment, other drivers, such as internal combustion engines, gas turbines, and steam turbines, are also used. This program focuses on steam turbines. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Stop When Unsure | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Stop When Unsure human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Storytelling for Business | Use the power of stories to connect with your team and your customers. Storytelling is a powerful tool you can use to improve presentations, share a vision, sell products, and connect with customers and colleagues Join national award-winning storyteller Andy Offutt Irwin and leadership guru Kelly Vandever as they show you how to create, organize, and use your own personal and business stories. | 1.25 | Fundamental |
| Strategic Brand Management | Effective brand strategy necessitates taking a pan-company perspective to understand the organisation's competencies, identify new opportunities and leverage the advantage of corporate culture to deliver the brand promise. Brand success does not result just from focusing on customers, but rather from adopting a more balanced perspective by addressing stakeholders. In an era when it is easy to copy what a brand can deliver (functional values) it is more difficult to copy how the brand is delivered (emotional values). This session will address how by looking inside and outside an organisation brands can grow and be sustained. It will open by presenting a model to strategically grow and sustain brands, 'From brand vision to brand evaluation'. After explaining the model, the different elements of the model will be explored to show how the model can be used to develop valuable brands. | 2.92 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Stress & Change Management for Design and Construction Professionals | Stress can be defined as a chronic imbalance of the autonomic nervous system (ANS). This 4-hour interactive online course discusses the dangerous effects of stress and how to control stress through a Stress Management and Relaxation Training Program (SMART). This course is divided into three parts, providing the student with a background study of stress, reasons why it is a problem and practical tested information and techniques concerning stress. These techniques can improve the quality and, very likely, the length of your life. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 4 | Fundamental |
| Stress Management and Prevention | Employees constantly encounter conflicts with bosses, changing responsibilities, financial pressures and many other situations that can lead to stress. Workplace stress can negatively affect a company due to decreased attendance, proficiency, and productivity. This course will help workers identify potential stressful situations, become aware of the effects stress can have on their health, relationships, and careers, as well as list ways to manage stress. | 0.25 | Intermediate |
| Stronger Together: Delegation and Task Management | YOU CAN'T DO IT ALL! It's time to delegate. Delegation is perhaps the most important skill for a manager of people to learn and master. You can't do everything yourself, and you'll go crazy if you try! At the same time, delegation is challenging and it takes both commitment and an investment of time to get it right. The good news is, once you start delegating well, you'll be surrounding yourself with capable and empowered team members. This course follows the story of child prodigy, Brianca, and Play All Day, the toy company she started with children like herself. Brianca learns quickly that the only way to accomplish her goals is to delegate well to those around her. Watch and learn as the Play All Day team grows together into a high-functioning team where each member feels valued and important. The course finishes with a bonus module on task management tools to help you keep track of your team's work. By the end of this course, you'll be inspired to go forth and delegate! | 0.5 | Fundamental |
| Substance Abuse Awareness | Drug addiction is when an individual is involved in compulsive drug seeking and use, regardless of any negative health or social consequences. This compulsive drug use can cause employees to be more likely to miss work, be less productive, or even be involved in on-the-job accidents. This course raises awareness by discussing the effects of different types of drugs and alcohol as well as how to recognize and deal with symptoms of abuse. | 0.5 | Intermediate |
| Successful Hiring | Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview. | 1.25 | Intermediate |
| Successful Negotiation | One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, you'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life. | 1 | Intermediate |
| Successful Termination | Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee. | 1.25 | Intermediate |
| Supporting Change: 01-The 3 Phases of Change | Understand the three phases of change and what to expect in each phase. | 0.08 | Intermediate |
| Supporting Change: 02-Reactions to Change | Identify the common reactions to change and strategies to best handle each type of reaction. | 1 | Intermediate |
| Supporting Change: 03-Your Path to Supporting Change | Learn and apply the five-step process for helping your team through changes in the workplace. | 1 | Intermediate |
| Supporting Change: 04-Mastering Supporting Change | Practice Supporting Change in a full scenario situation. | 1 | Intermediate |
| Supporting Change: 05-Supporting Change Health Check | Test your ability to apply Supporting Change concepts in this skills-based scenario assessment. | 1 | Intermediate |
| Sustainable Building Technology | This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment. | 2 | Intermediate |
| Symbols, Standards, and Schematics | One way in which electrical components are identified in drawings is by the use of schematic symbols. A schematic symbol either represents a single component in an electrical circuit, such as a pushbutton or motor, or a part of a component, such as with relays and starters. This course covers component representations, component abbreviations, electrical standard organizations, blueprint layout, and blueprint styles. | 0.25 | Intermediate |
| Synchronous Motor and Controller Maintenance | Synchronous Motor Maintenance Power factor correction; Constant Speed under varying load; High efficiency; High torque at low speeds; Low Maintenance; Performance stability and Compatibility with Variable Speed Drives are among the many reasons for the popularity of Synchronous Motor Applications throughout industry. Like all manufactured products, however, Synchronous motor systems must be monitored and maintained or the performance benefits will diminish or disappear. This lesson focuses on the routine maintenance requirements for Synchronous motors and their controllers. | 1 | Intermediate |
| Table Saw Basics | Table saws are essential tools used to accurately cut lumber and sheet materials like plywood and particleboard. This course discusses the location and function of the major components of a typical table saw and safety guidelines to follow while working on and around a table saw. It concludes by illustrating how to adjust the blade height and blade tilt, as well as how to square the blade and set the cut width. Understanding the table saw will allow you to use the saw properly and effectively, and will help prevent you or your co-workers from being seriously injured. | 0.25 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Table Saw Operations | Table saws are essential tools used to accurately cut lumber and sheet materials like plywood and particleboard. This course discusses the location and function of the major components of a typical table saw, safety guidelines to follow while working on and around a table saw, several different cut types that can be performed by a table saw, and the techniques used make those cuts. Understanding how the table saw operates will allow you to use it properly and effectively, and will help prevent you or your co-workers from being seriously injured. | 0.25 | Intermediate |
| TDLR TEST Basic Electricity I | This two hour interactive online course introduces basic electrical terms and calculations. Simple electrical circuits are used to illustrate the application of Ohm's law including the calculation of voltage, current, resistance and power in various circuit configurations. Basic electrical terms are defined and explained. This course includes a multiple choice quiz at the end. To comply with 2001 AIA and state requirements, all new online courses must be evaluated to confirm the assigned credit hour value. The assigned credit hour value for this course is 2 hours, pending confirmation within 90 days. Please be assured RedVector.com has NEVER had a course NOT meet its assigned credit hour value after evaluation, but has agreed to abide by the 2001 AIA and state requirements regardless. RedVector.com will refund the difference in price should any online course be assigned less credit than originally estimated. | 2 | Intermediate |
| Temperature and Light Sensors | Temperature sensors are used to help ensure that a process or application is staying within a safe temperature range during operation. They also aid in measuring the temperature of equipment under hazardous conditions such as extreme heat, or when an area is inaccessible by normal means. At the end of this module you will be able to list the different types of temperature sensors and state how the different types of light sensors work. | 0.25 | Intermediate |
| Temperature and Temperature Measurement, Part 1 | Accurate and reliable temperature measuring instruments help industrial facilities operate with maximum safety and efficiency. An understanding of how temperature measuring devices operate depends on an understanding of the concept of temperature and the ways in which solids, liquids, and gases respond to temperature changes. This course is intended to introduce technicians to the principles of operation and some common maintenance procedures related to the three basic types of mechanical thermometers: fluid thermometers, filled system thermometers, and bimetallic thermometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Temperature and Temperature Measurement, Part 2 | Among the many temperature measuring instruments found in industrial facilities are several that use electricity as a basis for temperature measurement. Therefore, technicians are frequently called upon to install, remove, inspect, and troubleshoot a variety of electrical temperature measuring devices. This second course on Temperature and Temperature Measurement covers the basic operating principles behind the most commonly used electrical temperature sensors and an infrared temperature detector, all of which use electricity as a basis for temperature measurement. Also discussed are some common maintenance and troubleshooting procedures related to thermocouples, resistance temperature detectors (RTDs), and thermistors. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Temporary Structures | The purpose of this course is to describe why and how temporary structures may be used to support transmission lines. Circumstances that could lead to a need for temporary structures are presented, and positioning, assembly, and guying of a temporary structure are demonstrated. How to transfer lines to a temporary structure is also explained. At the conclusion of this course, participants should understand why temporary structures are sometimes used. They should understand how to position, assemble, and guy a temporary structure. They should also be able to explain how to safely transfer transmission lines to a temporary structure. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Texas Electrician 4 Hour CE Program #5 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units. | 4 | Intermediate |
| Texas Electrician 4 Hour CE Program #6 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting. | 4 | Intermediate |
| Texas Electrician 4 Hour CE Program #7 | This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8. | 4 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The 5S System: 5S for Safety - New Eyes for the Shop Floor | The 5S System is a set of universal principles and activities that sustain high performance in companies in any industry. This interactive online course will teach you how to focus the 5S System on safety. Understanding and following the 5S System for safety will give you the foundation to improve safety and productivity in your workforce. | 0.5 | Intermediate |
| The 5S System: An Introduction to 5S | Companies in many industries are turning to improvement approaches to maintain the high performance output that their customers demand. This interactive online course is the first of a four part series that teaches you how to carry out basic 5S activities in a target area of your workplace. The 5S System is a systematic approach that organizes and standardizes the workplace. It promotes safety, improved work flow, better product quality, reduced inventory waste, and above all a sense that you, the users, are in control of your work area. | 0.5 | Intermediate |
| The 5S System: Set in Order and Shine | The 5S System is a systematic approach that organizes and standardizes the workplace. It promotes safety, improved work flow, better product quality, reduced inventory waste, and above all a sense that users are in control of their work area. This interactive online course is the third of a four part series. You will learn about the second step in the 5S System: Set in Order and how to organize your workspace. You will also learn about the third step in the 5S System: Shine and how to maintain your equipment. | 0.5 | Intermediate |
| The 5S System: Standardize and Sustain | Many organizations are trying to reduce inventory waste and improve productivity through advance change initiative approaches. The 5S System will allow you to accomplish several specific benefits that support high performance in the workplace. This interactive online course is the final course in the 5S System series. This course will cover steps 4 and 5 of the 5S System: Standardize and Sustain. You will learn how to maintain and monitor the conditions that resulted from activities of the first three S's through standardization. You will also learn the steps to follow to develop new habits in order to sustain the 5S System. | 0.5 | Intermediate |
| The 5S System: Workplace Scan and Sort | An uncluttered, well-organized, and understandable workplace is an essential foundation for lean, low-inventory production. The 5S System is a systematic approach that organizes and standardizes the workplace. This interactive online course is the second of a four part series that teaches you how to complete a workplace scan and how to define a target area for improvement. You will learn how to remove excess and unnecessary items through the Red Tag Technique. You will also learn about the first step in the 5S system: Sort. | 0.5 | Intermediate |
| The Art of Negotiation | From childhood we practice the art of negotiation. Bed time, a treat, a promotion, a raise, an extended deadline. Regardless of the type of work we do, knowing how to negotiate effectively can greatly impact our success and our satisfaction. Strategic application exercises and a rich multimedia process, will teach you basic skills to negotiate effectively to get the results you want. | 0.6 | Intermediate |
| The Change Process | In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes.This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours. | 2.5 | Intermediate |
| The Hazards of Oxygen and Oxygen Enrichment | This course will introduce and describe the characteristics of oxygen (O2). It will discuss the health hazards of O2 and how to detect oxygen deficient and oxygen enriched atmospheres. You will learn best work practices including handling and storage. | 1 | Intermediate |
| The Power of One-Taking Accountability to Get Results | Have you ever said that something is not your responsibility? Maybe it is! Learn how taking accountability can change the results you are getting at work and in your life. This course uses application exercises and a rich multimedia process to give you the insight and skills to change your results through taking accountability. | 0.5 | Intermediate |
| The Power of Vision | Do you know where you're going professionally? Do you know what you want out of the next 3 weeks? How about the next 3 years? This course will help you create a powerful vision of where you want to go and what you want to achieve. You'll also learn how to get others on board with your vision. You will learn from real-world examples of different individuals and how they took their vision of what they wanted and made it a reality. Whether you are trying to get somewhere personally, or you want to create a clear and compelling vision of where you want your team to be, this course can give you the foundation you need to get pointed down the right path. | 0.5 | Intermediate |
| The Principles and Implications of the International Energy Conservation Code (IECC) v2012 | Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard. | 2 | Fundamental |
| The Risk of Misclassification of Employees & Essentials of I-9 Compliance (RV-PGM144) | In the first module of this interactive, online program, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors. The second module of this program will discuss valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce. | 1 | Fundamental |
| The Safe Lab Environment | This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| The Safe Operation of Utility Carts | Utility Carts are used in many types of facilities from warehouses to apartment complexes. This video addresses the many hazardous and potentially dangerous situations often overlooked by Utility Cart operators. It stresses the importance of following safety guidelines, and the problems caused by complacency in the operation and basic maintenance of these utility vehicles. Topics covered also include:Daily Inspections (tires, fluids, steering, obstacles)Load limitsOccupant & Pedestrian safetySpeeding, skidding & slick surfaces Turns, center of gravity & blind spotsBacking up, ramps and parkingRules for riders | 0.15 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The Science of Mold | Mold is found throughout nature and is critical to the success of the food chain in forests and low land areas. Yet, if mold shows up in your home interior, it is usually a sign that something is wrong. If not dealt with correctly, mold will become a problem for the human inhabitants.<br>This course will introduce you to the fundamentals of what good and bad mold is, and why it should be respected but not feared. It will also provide the building blocks for a more complete understanding of what it takes for fungal growth and some simple steps toward safely remediating it from the indoor environment. | 1 | Fundamental |
| The Science of Personal Productivity | Exploring the power of the mind to get more done.<br>Do you start your day by checking your email and then get stuck? Do you let one big task loom over your head and get in the way of your productivity? Do you find yourself saying Yes to too many tasks and then not having enough time to do anything well? If any of these sound like you, this course from Dr. Rebecca Heiss will help you understand more about why we find ourselves in these situations, and teach you practical, science-based ways to be more productive at work or home. | 0.75 | Fundamental |
| The Top 5 Marketing Mistakes | What Is The Difference Between A Marketing Campaign That Delivers Average Results, And One That Boosts Profits And Changes Your Bottom Line? (Hint: The keys to effective marketing are in this course).<br>In this course, Rich Harshaw explains why his famous statement, Everything You Know About Marketing Is Wrong is so universally true, and what businesses can do to revamp their marketing strategies to achieve superior results. | 3 | Fundamental |
| The Ultimate Project Manager, Chapter 01: Today's Project Manager | Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape.In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 02: Marketing And Proposals | Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the go/no go decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 03: The Contract Agreement | This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 04: The Project Management Plan | The purpose of this course is to provide you will the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 05: The Project Schedule | Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 06: The Project Budget | Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 07: Leading The Project Team | The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 08: Managing Client Relationships | In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 09: Developing Effective Communications | Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 10: The Project Startup | A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook. | 1 | Intermediate |

VectorSolutions™

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The Ultimate Project Manager, Chapter 11: Managing Your Time | Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports | Because many design firms are consultingwith clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases | Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase. | 2 | Intermediate |
| The Ultimate Project Manager, Chapter 14: Managing Project Quality | Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects.<br>You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 15: Managing Project Risks | The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 16: Project Financial Management | Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its as-sold financial results with no write-offs In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 17: Project Management And Design Technology | Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project | The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 19: Project Closeout | Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide you through the processes and all considerations that should be accomplished in athat should be considered during project closeout. You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods | Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods. | 1 | Intermediate |
| The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data | As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| The Ultimate Project Manager, Series Summary: The Short and Sweet Version | The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close. | 1 | Intermediate |
| The WELL Building Standard | How well does your building fit your tenants? Do your employees need a place to walk or work out? This interactive online course introduces the WELL Building Standard and discusses unique features (known as credits in LEED) to certify projects and gain the credential. We will discuss the application of the WELL standard to a hypothetical case study, conducting a feature-by-feature analysis and comparing the building before and after the standard is applied. | 3 | Fundamental |
| Three-Phase AC Induction Motor Maintenance | This course covers three-phase alternating current (AC) induction motors, which use magnetic induction to convert three-phase AC power into mechanical energy. They are used throughout industry to drive equipment such as conveyor belts, pumps, air compressors, and generators. Three-phase AC induction motors are economical, efficient, and reliable. But, although they are reliable, they may still break down. Electrical maintenance personnel are responsible for maintaining the three-phase induction motors in their plant and for fixing any AC motors that have broken down. | 1 | Intermediate |
| Time Management Basics | You can improve the way you use time. You can avoid patterns and habits that make it difficult for you to get things done. Benjamin Franklin said, Dost thou love life? Then do not squander time, for that's the stuff life is made of. | 1.5 | Fundamental |
| Tips for Managing Older Team Members | Being in a leadership position early on in your career is exciting. But on the flip side, you can face hurdles, including learning how to manage employees who may be years older than you. Older employees are a talent pool that shouldn't be underutilized despite the age gap. This video will provide some tips of what to do, and what not do to, when managing older team members. | 0.2 | Intermediate |
| Total Productive Maintenance: Introduction | The materials in this course are designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM). In this interactive online course, you will learn about the essential elements of TPM, explore the fundamental strategies that are required for a successful TPM effort, and learn how to maintain and manage equipment cooperatively to maximize equipment effectiveness. | 0.5 | Intermediate |
| Total Productive Maintenance: Overall Equipment Effectiveness | This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance with a focus on Overall Equipment Effectiveness (OEE). Overall Equipment Effectiveness means the amount of productive service equipment provides. It provides a way to evaluate equipment operation and identify pieces of equipment that present opportunities for improvement.<br>In this interactive online course, you will learn how to calculate OEE so you can analyze a piece of equipment and discover how its effectiveness can be improved. Interpreting the numbers will help you identify causes of loss, or waste and eliminate them. | 0.5 | Intermediate |
| Total Productive Maintenance: Predictive Maintenance | This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM) with a focus on predictive maintenance. The early detection of developing problems is fundamental to preventive maintenance. However, some problems are difficult to detect early enough or accurately enough to safeguard equipment effectiveness. In this interactive online course, you will learn that predictive maintenance techniques provide the means to identify deterioration not yet detectable with the five senses, and to measure the amount of deterioration accurately so that parts may be replaced at the optimum time. If parts are replaced too late, equipment effectiveness suffers; if parts are replaced too early, unnecessary costs are generated. In this course, you will also learn that predictive maintenance is a cornerstone of TPM. | 0.5 | Intermediate |
| Total Productive Maintenance: Preventive Maintenance | This course is designed to demonstrate the goals, methods and practical benefits of Total Productive Maintenance (TPM) with a focus on preventive maintenance. TPM depends upon good basic maintenance practices. Without a disciplined, systematic approach to preventive maintenance, it is impossible to achieve a high level of equipment effectiveness. In this interactive online course, you will learn how to select the equipment to focus on first, determine which preventive maintenance activities should be performed on that equipment, develop clear and specific instructions for performing those activities, and develop an effective preventive maintenance schedule. | 0.5 | Intermediate |
| Toxic Substance Control Act (TSCA) Compliance | With new chemicals and products being introduced into the marketplace on a daily basis, it is imperative that manufacturers properly identify and evaluate new products prior to being released for use. This course will discuss how the Environmental Protection Agency (EPA) regulates polychlorinated biphenyls (PCBs) use in the United States. In addition, this course will discuss compliance strategies based on the Toxic Substance Control Act's sections and titles. | 1 | Fundamental |
| Transformer Connections, Part 1 | The purpose of this course is to teach the common types of overhead transformers and how they are connected. Both single-phase and three-phase connections are covered, but the emphasis is on three-phase connections. The course presents connection theory and demonstrates how connections are made. At the conclusion of this course, participants should be able to describe and demonstrate how to make single-phase transformer connections. They should be able to describe and demonstrate how to make three-phase connections in the wye-wye and delta-delta configurations. They should also be able to verify that a replacement transformer is the right one. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transformer Connections, Part 2 | The purpose of this course is to teach how common types of overhead transformers can be connected together. Both single-phase and three-phase transformers are covered, but the emphasis is on three-phase connections of three single-phase transformers. The course presents connection theory using phasor diagrams and demonstrates how each of the connections is made. At the conclusion of this course, participants should be able to describe and demonstrate how to make three-phase connections in all of the following configurations: delta-wye, wye-delta, alternative delta-delta, and alternative wye-delta. Participants should also be able to show these connections using phasor diagrams. They should be able to demonstrate how to connect transformers to form an open bank in the configurations of delta-delta and wye-delta. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transformer Maintenance | This course is intended to provide participants with a basic background in transformer theory and connection schemes as well as an overview of the most common transformer types and the typical maintenance and testing procedures that apply to them. | 1 | Intermediate |
| Transformer Troubleshooting | The purpose of this course is to teach techniques for troubleshooting single-phase transformers and three-phase transformer banks. The course demonstrates how to identify a faulted transformer. It also demonstrates how to isolate transformers and how to test for proper no-load voltage. At the conclusion of this course, participants should be able to identify a faulted single-phase transformer, isolate it, and test it for proper no-load voltage. They should also be able to identify a faulted transformer in a three-phase transformer bank, isolate the faulted transformer, and test it for proper no-load voltage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Transformers | Substations and switchyards contain various types of transformers. Among them are power transformers, current transformers, and potential transformers. Each of these types of transformers has unique features that distinguish it from the other types of transformers and from other substation and switchyard equipment. In this course, you will learn about these transformers as well as their connections and basic principles. | 1 | Intermediate |
| Transformers, Breakers, and Switches | This course is designed to familiarize participants with basic concepts associated with the operation of transformers, circuit breakers, and various types of switches. After completing this course, participants should be able to explain the basic principles of transformer operation, identify some of the basic components of a transformer, and describe checks that are generally made during a transformer inspection. They should also be able to describe the general operation of a circuit breaker, explain how to reset a tripped circuit breaker and how to rack out a circuit breaker, and describe the basic operation of pushbutton switches and rotary switches. | 1 | Intermediate |
| Transition to Leadership | New to a leadership role? You're in the right place! As leadership, you have a different focus, new responsibilities, and different challenges than you did as an individual contributor. This course covers the ins and outs of the sometimes difficult transition experience from an individual contributor into leadership. Regardless of your title or the type of leadership role you now fill, through interactive assignments and a rich multimedia process, this course will smooth your transition and put you in position to excel in your new role. | 0.6 | Intermediate |
| Transmission | The purpose of this course is to teach participants the purpose and function of the components that make up the transmission portion of a transmission and distribution (T&D) system. These components include conductors, insulators, and structures. The course also gives a basic overview of the major tasks that must be accomplished when a transmission line is constructed and discusses the principal concerns of a lineman during transmission line inspection. At the conclusion of this course, participants should be able to list and describe the major components in a transmission line and explain their functions. They should also be able to describe the basic tasks involved in constructing and inspecting a transmission line. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transmission and Distribution: Distribution Line Installation and Removal | Sometimes changes are made in the area around a distribution line that make it necessary to relocate or replace a portion of that line. This interactive online course will familiarize you with the general procedures involved in completing a typical distribution line installation and removal. You will learn how to plane an installation and removal job and how to perform the major steps involved in doing the job. You will also learn how to pull and sag lines, parallel a new line with an existing line, remove conductors, and remove equipment. | 1 | Intermediate |
| Transmission and Distribution: Distribution Line Replacement | The purpose of this course is to teach how to replace conductors in an existing line with new conductors. The situation described is one that often occurs when it is necessary to increase the size of the conductors in a line. This interactive online course demonstrates how to install the new conductors, parallel them with the existing conductors, and remove the old conductors. The importance of maintaining the proper clearances and the importance of maintaining the integrity of the existing line are explained. Safety is emphasized throughout the course. At the conclusion of this course, participants should be able to plan a replacement job and demonstrate how to perform the major steps involved in doing the job. They should be able to install temporary crossarms, transfer lines, pull and sag new lines, parallel a new line with an existing line, and remove old conductors. | 1 | Intermediate |
| Transmission and Distribution: Focus on Distribution | The transmission part of a transmission and distribution system supplies electricity to substations and individual service areas. While the job of the distribution part of a T&D system is to take this electricity and supply it to individual consumers at a voltage they can use; doing this job properly requires the use of a variety of electrical devices and an intricate system of distribution lines. This interactive online course will teach you about the components that make up a typical distribution system. You will learn how to recognize individual components and gain a basic understanding of the jobs they perform. | 1 | Intermediate |
| Transmission and Distribution: Framing Specifications and Basic Construction Diagrams | The purpose of this course is to teach participants the kinds of information that can be obtained by reading electrical system diagrams and to illustrate how this information can be used to assist lineworkers who work on electrical systems. Practical examples of how to get information are given throughout the course. At the conclusion of this course, participants should know what kind of information is typically found on construction diagrams, on schematic diagrams, and in specification manuals. They should know how to use all of these references to determine the information necessary to do a job. | 1 | Intermediate |
| Transmission and Distribution: Introduction to Transmission and Distribution Systems | The purpose of this interactive online course is to teach participants how transmission and distribution (T&D) systems generally deliver to customers the power produced by power plants. The course describes how the major components of a T&D system function and how electricity flows through these components on its journey from the power plant to customers. At the conclusion of this course, participants should have a basic understanding of how transmission and distribution systems operate. They should be able to identify the basic components of a transmission and distribution system and explain their functions. They should also be able to describe the flow path from a power plant, through a typical T&D system, to the customer. | 1 | Intermediate |
| Transmission and Distribution: Overhead Distribution Systems | The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed. | 1 | Intermediate |
| Transmission and Distribution: Pad-Mounted Transformers and Switchgear | The purpose of this interactive online course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer. | 1 | Intermediate |
| Transmission and Distribution: Power Quality | This interactive online course is designed to familiarize participants with the issues and problems associated with maintaining power quality. To obtain maximum benefit from this course, participants should have a general understanding of the basic concepts of electric power generation, transmission, and distribution. At the conclusion of this course, participants should be able to explain the basic concepts of power quality, identify sources and causes of power quality problems, and describe the effects of power quality problems on residential and commercial customers. They should also be able to identify equipment and methods for preventing and monitoring power quality problems. | 0.75 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
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| Transmission and Distribution: Service Installation | Each service installation job you do will be different because of different site conditions, but the basic installation skills and practices you will learn in this course can be applied no matter what type of service installation job you're doing. This interactive online course will teach you how to install and connect services. You will learn about the different types of connectors available and how service conductors are joined together using some of those connectors. You will also learn how to install single phase, overhead, and underground residential service. Additionally, you will learn how to install three-phase service, and how to replace an existing three-phase service without affecting the customer. | 1 | Intermediate |
| Transmission and Distribution: Substations and Switchyards | Electricity affects almost everything we do. Sometimes its impact is so subtle, we don't even realize it's there. Just about everybody depends on it and expects it to be available when it's needed. From the businesses that use electricity to process information to suburban homeowners who rely on electricity for the basic conveniences we've grown accustomed to, to the rural dairy farmer who relies on electricity to operate much of his machinery, our entire country is interlaced with transmission and distribution systems that get electricity to where it's needed when it's needed. The purpose of this interactive online course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents. | 1 | Intermediate |
| Transmission and Distribution: Transmission Line Installation | The purpose of this interactive online course is to describe and demonstrate an approach to installing a transmission line. This work is not a routine part of a lineworkers's job in many locations, but an understanding of the basic approach is useful to individuals who are responsible for maintaining lines. At the conclusion of this course, participants should understand how to plan and set up an installation job, the purpose of guard structures, and how to set them up. They should also know how to pull conductors into place to properly sag and how to clip them permanently to the insulators. | 1 | Intermediate |
| Transmission and Distribution: Transmission Line Safety | This course is designed to cover three major areas relating to safety in transmission line work: personal safety, electrical safety, and work site safety. Specific attention is directed to proper clothing and protective equipment; hazards associated with slipping, tripping and falling, and lifting and moving loads; electrical hazards and steps that can be taken to safeguard against them; and how personnel can work safely at the job site, both on the ground and while climbing transmission structures. This interactive online course assumed a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction. | 1 | Intermediate |
| Transmission and Distribution: Underground Residential Distribution Systems | Recent developments in technology, such as the development of cable and equipment that can be directly buried in the ground have made underground installation of electrical service to residential areas easier than ever. Today, many residential subdivisions have all their utilities installed underground, giving a cleaner, more picturesque look to the neighborhood. This interactive online course is about underground residential distribution systems, also known as URD systems. URD systems are local distribution systems designed primarily to be buried in the ground and serve residential customers.The purpose of this course is to give you a basic understanding of the common types of URD systems, as well as some of the various components that may be used in a URD system. We'll also be looking at some of the ways a URD system can be inspected. Finally, we'll see a demonstration of how a URD system has been set up to allow work to be done on it safely and efficiently. | 1 | Intermediate |
| Transmission and Distribution: Using Line Test Equipment | The purpose of this course is to introduce types of line test equipment used in the field to detect voltage, amperage, and resistance; to show how this equipment is used; and to show the kinds of readings that can be expected from this equipment. After completing this course, participants should be able to identify types of line test equipment used in the field. They should have a basic understanding of the use of this equipment; they should know how to determine which instrument to use; and they should be able to demonstrate the use of each meter to take a reading. | 1 | Intermediate |
| Transmission and Distribution: Using Various Types of Electrical Diagrams and Geospatial Information Systems | Did you know different types of electrical system diagrams are used to show large portions of an electrical system down to a single structure or even a portion of a structure? The purpose of this course is to teach the basic kinds of information that can be obtained from various types of electrical system diagrams: one-line diagrams, plan-profile diagrams, framing diagrams, and GIS technology. The course shows how these diagrams are read and interpreted and how information can be used to complete an assignment. This interactive online course will show participants what information is typically found on one-line, plan profile, framing diagrams, and GIS applications. They should also be able to interpret diagrams to determine the location of a job site and then plan the best route to the site. In addition, participants should be able to use a framing diagram to determine what materials should be present at a work site and in what quantities. | 1 | Intermediate |
| Transmission and Distribution: Working on Distribution Poles | The purpose of this course is to teach the basic principles involved in working safely on distribution. To illustrate these principles, you will be shown some resources available for planning distribution work. This interactive online course will teach you general considerations associated with planning a distribution job. You will also learn how a variety of tools and equipment can be used, including an auxiliary arm. Additionally, you will learn how to replace secondary conductors, move energized conductors, and how to install floating dead-ends. | 1 | Intermediate |
| Transmission Line Repair - Bare Hand Method | The purpose of this course is to teach the theory and practice involved in using the bare hand method to perform live transmission line repair. Safety is emphasized throughout the course. The basic theory of bare hand work is presented as well as the equipment used to perform this work. Installation of a repair sleeve is used as an example to illustrate how the principles of bare hand work are applied. At the conclusion of this course, participants should be able to explain what bare hand repair work is, why it works, and how it is done. They should also be able to explain how to install a repair sleeve using the bare hand method. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transmission Line Repair - Hot Sticks | The purpose of this course is to teach the theory and practice involved in safe use of hot sticks to perform live transmission line repair. Basic safety issues and basic techniques for the care, selection, and use of hot sticks are presented. The course builds on a basic understanding of how to work on transmission towers and the use of high-voltage rigging techniques to demonstrate replacement of string insulators using hot sticks. At the conclusion of this course, participants should be able to describe the safety issues important in performing live transmission line repair using hot sticks. They should be able to care for, select, and use hot sticks. They should also be able to explain how to replace string insulators in all three common positions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Transmission Structures | The purpose of this course is to teach how transmission structures are built. It is recognized that transmission structure construction is not a routine part of a lineman's job in most locations; however, a basic understanding of how this work is done is useful for maintaining transmission lines. The course describes how transmission structure foundations are laid and covers three types of construction methods for erecting transmission structures. At the conclusion of this course, participants should be able to describe how two types of transmission structure foundations are laid. They should also be able to explain how transmission structure construction is planned and describe three ways that transmission structures are erected. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Transporting Hazardous Materials | Every day, hazardous materials are shipped in this country—materials that could threaten the safety of individuals, property, and the environment. These materials are transported by truck, by train, by air, and by water. Because of the risks posed by transporting hazardous materials, you need to know about the potential dangers and steps you must take to help protect yourself and others against them. In this interactive, online course, we'll cover some general requirements associated with transporting hazardous materials. We'll look at what's meant by the term hazardous materials, and we'll see how these materials are classified. We'll also look at documentation and packaging that must be used when hazardous materials are shipped, and we'll look at labels and placards used to identify hazardous materials. | 0.5 | Intermediate |
| Treating and Sulfur Recovery Operations | Crude oil contains valuable and desirable hydrocarbon molecules. In addition, however, raw crude and distilled fractions contain impurities. The type and amount of impurities in raw crude and distilled fractions may vary, depending on several factors, including the origins of the crude and the boiling ranges of the fractions. This course covers some treating processes that are used to remove or convert sulfur compounds. | 1 | Intermediate |
| Tree Trimming Safety | Tree trimming is a job that requires a professional attitude and a high level of training in order to work safely and productively. The very nature of tree trimming lends itself to many hazards. Of course, we all are aware of the potential of a serious fall, but there are also risks of coming in contact with energized utilities, falling trees and limbs, contact with poison ivy, oak, or even snakes. A good tree trimming program must be designed to provide safe working conditions, the training needed to do the job safely and efficiently, selection of qualified personnel, and providing well-maintained tools to do the job.Topics covered also include:Saws, axes, and pruning toolsChainsaw usePersonal protective equipmentSafety belts, climbing spikes, and harnessesWorking from ladders, boom trucks or aerial basketsPlanning and other considerations that need | 0.25 | Fundamental |
| Tree Trimming, Part 1 | Tree Trimming, Part 1 is designed to familiarize participants with the basic tasks, equipment, and safety hazards associated with trimming trees near energized power lines and equipment. At the conclusion of this course, participants should be able to identify safety hazards associated with tree trimming work and describe ways to avoid them. They should also be able to identify and describe the use of safety equipment, manual tools, and power tools that are commonly used for tree trimming work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Tree Trimming, Part 2 | Tree Trimming, Part 2 is designed to familiarize participants with procedures and equipment typically associated with emergency line clearance work. Emphasis is placed on the safety aspects of the job. It is assumed that participants have completed Tree Trimming, Part 1 or have equivalent background knowledge. At the conclusion of this course, participants should be able to describe various aspects of emergency tree trimming work, including how to plan and perform a job safely. They should also be able to identify some of the tree cuts that are used for clearing trees and tree limbs from power lines. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Triethylaluminium Safety Awareness | This course will introduce and describe the characteristics of Triethylaluminium (TEAL). It will discuss the health hazards of TEAL and how to reduce exposure through workplace controls as well as how to mitigate danger through safe work practices and proper PPE. | 1 | Intermediate |
| Troubleshooting Overhead Lines | The purpose of this course is to teach how to go about patrolling overhead lines. The importance of patrolling to reliable operation of the lines is discussed, and examples of structure, hardware, conductor, insulator, and obstruction problems are shown and explained. An example of how to detect problems while patrolling an overhead line is also given. At the conclusion of this course, participants should be able to explain why patrolling overhead lines is important. They should understand the types of problems to look for when patrolling overhead lines. They should be able to detect structure problems, problems with broken or damaged hardware on a pole or tower, problems with conductors and insulators, and current or developing obstructions of the lines. They should also be able to demonstrate the ability to detect problems when patrolling overhead lines. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Troubleshooting Power Supplies | Rectifiers are essential for the operation of everyday electronics. However, problems with these rectifiers can arise, and it is just as essential to give these problems immediate attention. This course will serve as a brief discussion on how to troubleshoot both half-wave and full-wave rectifiers. | 1 | Intermediate |
| Troubleshooting Systems and Circuits | Electrical problems may show up anywhere at any time. Some problems are as simple as an abnormal signal value that can be corrected by a minor adjustment. Other problems are not as easy to identify and correct, especially when the cause of the problem is in a non-electrical component or in another system. Regardless of the cause, electricians are responsible for zeroing in on problems whenever they occur and bringing things back to normal. A good way to ensure that the proper actions are taken in response to an electrical problem is to follow a troubleshooting procedure that is both systematic and logical. This course describes the basics of troubleshooting, general guidelines and action steps, and a seven-step troubleshooting method for solving problems. | 1 | Intermediate |
| Turbine Efficiency, Part 1 | This course examines some of the conditions that can cause operating parameters to change and some of the effects of those changes. After completing this course, participants should be able to explain why it is important to operate a turbine as close to its design parameter values as possible, and describe how changes in certain parameters affect efficiency, heat rate, and fuel consumption. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Turbine Efficiency, Part 2 | This course is designed to explain how turbine efficiency and unit heat rate are affected by the use of attemperation, by the positioning of the turbine control valves, and by changes in extraction steam flows. After completing this course, participants should be able to explain why superheat and reheat attemperation cause heat rate to increase, and describe ways to prevent frictional losses in the turbine control valves. They should also be able to describe how heat rate is affected by changes in extraction steam flows. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Turbine Efficiency, Part 3 | This course introduces the fundamental aspects of heat transfer and relates that information to component and plant efficiency. After completing the course, participants should be able to explain how heat transfer occurs and identify factors that affect heat transfer. They should also be able to explain how changes in operating conditions affect the factors associated with heat transfer. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Turbine Generator Basics | The steam turbine generators used today produce approximately 85% of the electricity in the United States. The primary supply of electrical energy is made in three-phase synchronous generators with power ratings up to 1,500 megawatts or more. This course discusses the basics of a turbine generator including safety, terminology, design, operation, and the functions of generator protective devices. | 0.25 | Intermediate |
| Turnover | Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional Turnover human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Underground Cable Installation | The purpose of this course is to teach two methods of underground cable installation: direct burying and installation in conduit. The course demonstrates how to install and connect a direct-buried cable. A demonstration of how to install cable in underground conduit is also presented. At the conclusion of this course, participants should be able to install and connect a direct-buried cable. They should also be able to install PVC conduit underground and pull cable into it. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Underground Conduit | The purpose of this course is to teach how to pull cable in manholes and how oil-filled metal conduit is monitored and maintained. The course describes typical cable-pulling equipment and demonstrates how it is used to pull cable in manholes. Oil-filled metal conduit is described, and the principles of corrosion monitoring are explained. An approach to repair of a leaking oil-filled metal conduit is also presented. At the conclusion of this course, participants should be able to describe and demonstrate how cable-pulling equipment is used to pull cable in manholes. They should also understand the purpose of oil-filled metal conduit, and they should be able to explain how corrosion-monitoring equipment works and how to repair leaking oil-filled metal conduit. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Understanding Business Ethics | In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company. | 2 | Intermediate |
| Understanding Facility Costs | Discusses the relationship between revenue, cost and profit. Illustrates the importance of reducing both big and small waste streams at a facility. | 0.25 | Intermediate |
| Understanding Fire Sprinkler Drawings and Calculations | Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed. | 1 | Intermediate |
| Understanding Gender and Gender Identity | Having an understanding of gender and gender identity is important in today's society. While it feels natural to describe people using the terms we were taught since early childhood, the female-male binary no longer applies to everyone. In this video we'll discuss what gender identity is and provide some tips for respecting everyone's deeply held sense of self. | 0.2 | Intermediate |
| Understanding HIPAA | In LearnSmart's Understanding HIPAA Video Training, individuals associated with the health care industry will learn the rights and responsibilities of both patients and employees with regard to medical information -- and how it must be gathered, stored, and managed. In addition, this training details the regulations surrounding how covered entities store, process, and transfer information. | 4 | Intermediate |
| Understanding Moisture Intrusion and Its Impact on Mold Growth | The basic role of a building is to protect the indoors from the outdoors. That includes water intrusion. Water intrusion can happen in many ways and can have a detrimental effect on the structure and the people within. This course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth , as well as the proliferation of other micro-organisms. | 1 | Fundamental |
| Understanding Workers' Compensation for Employees (V15) | What would happen if you were injured in an accident on the job? Who would pay your medical bills and compensate you for time lost from work? In the state of Florida, not all employers are required to provide workers' compensation insurance. Workers need to understand their rights and know if they are covered in the event of a work-related accident. The purpose of this 1-hour interactive online course is to educate employees about their legal rights under workers' compensation. The class explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventative measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and maintain a healthy workforce. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Understanding Workers' Compensation for Employers V14 | Under federal and Florida State Law, employers have a legal obligation to provide workers' compensation benefits for workers injured on the job. Failure of eligible employers to provide compensation for injured workers may result in lawsuits and heavy fines, so employers need to know their rights and responsibilities. This 1-hour online course explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventive measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and control insurance costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Uninterruptible Power Supply (UPS) System Efficiency | Uninterruptable Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime. Note: This course offers subtitles in Brazilian Portuguese and Spanish. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Unstable, Reactive, and Energetic Compounds | Chemical reactions are part of our daily lives. From cooking in the kitchen, to driving a car, to handling chemicals at your workplace, these reactions are commonplace. Dangerously reactive liquids and solids can be extremely hazardous. Accidental or uncontrolled chemical reactions are important causes of severe personal injury and property damage. Unstable, Reactive, and Energetic Compounds course will explain the basic terminology relating to chemical hazard classes and reactivity. | 0.5 | Intermediate |
| URD Transformers | The purpose of this course is to teach the basic principles involved in detecting a transformer problem and to illustrate disconnecting, replacing, and reconnecting a faulted subsurface transformer. Basic troubleshooting techniques are presented using an example in which a subsurface residential transformer has caused a power outage. Techniques for energizing and de-energizing are illustrated. At the conclusion of this course, participants should be able to explain how to use the process of elimination to determine the cause of a residential power outage. They should be able to apply this process to locate the cause of a residential power outage. They should also know how to use diagrams to locate circuits, transformers, and houses, and know how to plan a logical search for the cause of an outage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Use of Ohm's and Kirchhoff's Laws in DC Circuits | The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that commonly is referred to as Ohm's law. Ohm's law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. The letter I is used to represent current, E represents voltage, and R represents resistance. Using these symbols, Ohm's law can be expressed as I=E/R. Kirchhoff's two laws also reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. In this course, participants will learn how to use these laws when working with direct current (DC) circuits. | 1 | Intermediate |
| Using Electrical Test Equipment | Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be qualified. A person who does not meet this requirement should work under the direct supervision of a qualified person. This interactive online course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. | 1 | Intermediate |
| UV-Visible Spectroscopy | This course is designed to introduce participants to the analytical technique of UV-visible spectroscopy. The course covers the properties of the electromagnetic spectrum and the basic principles of UV-visible spectroscopy as well as terms used to describe this analytical technique. The course also introduces the equipment used to perform UV-Visible spectroscopy and covers the way typical UV-visible spectroscopy analysis can be performed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Valve Basics | Valves are used throughout most industrial work places, but what do you know about them? Given their importance, its surprising that many people don't know what valves do or how they do it. This course offers a solid introduction to many basic concepts related to the valves used in general industry. So whether you're a complete novice, filling some gaps in your knowledge, or just brushing up, Valve Basics has the information you're looking for. | 0.5 | Intermediate |
| Valve Common Problems | Valves are critical in many workplaces, and so it's important to know how to avoid, diagnose, and fix common valve-related problems. This course focuses on flashing, cavitation, choked flow, turbulence, and noise, explaining the causes of each and providing possible solutions. | 0.5 | Intermediate |
| Valve Performance | You may know how valves work, but do you know how to select the right valve for the job based on its performance characteristics? If not, this is the course you've been looking for. Learn all the basic concepts and terms for evaluating a valve, including those for the amount of fluid that can flow through a given valve in a period of time, the distance the valve stem travels from the open to closed position and the relationship between the valve travel distance and the corresponding changes in flow rate. You'll also discover how the performance of a valve can change after its installed in a real system with varying conditions, how well a valve can withstand pressure and prevent leakage, and how control systems can be used to increase the efficiency of valves. | 0.25 | Intermediate |
| Valves: Basic Types and Operation, Part 1 | In most industrial facilities, process systems handle many different types of fluids. The flow of these fluids through plant piping systems is controlled by valves. To keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. In this interactive online course, we will discuss the various uses of valves, their parts, and valve connections. | 0.5 | Intermediate |
| Valves: Basic Types and Operation, Part 2 | The purpose of this course is to provide participants with a general understanding of the basic types and operation of valves. The flow of fluids through plant piping systems is controlled by valves. In order to keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. At the end of this course, participants will have a better understanding of the types, purposes, and applications of various valves. | 1 | Intermediate |
| Valves: Electric and Hydraulic Actuators | This course is designed to introduce participants to various types of electric and hydraulic actuators that are used to control valves in process systems. After completing this course, participants should be able to describe the basic operation of solenoid actuators, motor-operated actuators, and various types of hydraulic actuators. They should also be able to explain the function of a pilot valve and describe problems associated with hydraulic actuators. | 2 | Intermediate |
| Valves: Introduction to Actuators | Some of the valves that are used to control the flow of fluids in process systems have to be opened, closed, or throttled frequently. Manually positioning these valves using handwheels or levers is not always practical. Instead of handwheels or levers, actuators are often used to position the valves. This module is designed to introduce participants to actuators in general and pneumatic actors in particular. | 1 | Intermediate |
| Variable Speed Drives: Common Applications | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. In addition, the motor and controller combination, the drive, is frequently integrated into an existing production process or system. This course will examine some of the common applications for VSDs. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 1 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |
| Variable Speed Drives: Controllers and Troubleshooting, Part 2 | Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems. | 1 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Variable Speed Drives: Installation | Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. This course will examine a typical VSD installation, how to get it running, and how to keep it running while making its operation and maintenance as trouble-free as possible. | 1 | Intermediate |
| Variable Speed Drives: Introduction to VSDs | Variable speed drives (VSDs) are used throughout the industry to electronically regulate the speed and the torque of motors. With nearly half the energy in the world consumed by rotating machinery, the applications for VSDs are enormous, and their use is spreading rapidly. When applied and installed properly and when operated and maintained correctly, VSDs can substantially reduce the power required for the work being done and can provide the precision control that is now demanded by modern industry throughout the world. | 1 | Intermediate |
| Variable Speed Drives: Programming AC Controllers | This course describes alternating current (AC) controller setup procedures, AC controller frequency options and other parameter settings, and AC controller I/O configuration. The course illustrates how to interpret AC controller fault monitoring, alarms, and diagnostics. Finally, the course explains flux vector programming. | 1 | Intermediate |
| Variable Speed Drives: Programming DC Controllers | Wherever variable speed drives (VSDs) are used, they must be programmed to meet the needs of the specific application. Sometimes this means little more than firing them up and letting them run, maybe just punching the drive up to the required speed. But more often it means a variety of settings must be programmed into the drive. This course will focus on programming the controllers for variable speed direct current (DC) motors. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 1 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: System Troubleshooting, Part 2 | Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems. | 1 | Intermediate |
| Variable Speed Drives: Systems and Integration | When variable speed drives (VSDs) are used in industrial applications, they usually are not used by themselves. Although single motors and single controllers are sometimes used in isolated applications, the more usual application is one in which many motors and many controllers are interlinked into a larger automated system that includes many types of processes. This course will examine the ways in which VSDs and automated systems are linked together. | 1 | Intermediate |
| Vehicle Brake Basics | Brakes are mechanical devices used to slow or stop a moving object, or to prevent the movement of a stationary object. This course discusses the hydraulic braking systems typically installed in modern automobiles and light duty trucks. Similar systems can be used on rotating equipment and machinery. Brake pedal design, vacuum-assisted brake boosters, master and slave cylinders, emergency brakes, anti-lock brake systems, and the importance of regular inspections and maintenance are all covered. | 0.25 | Intermediate |
| Violence in the Workplace | Every year in the U.S., there are an estimated 2 million reported cases of workplace violence. NIOSH defines workplace violence as any act or threat of physical violence, harassment, or intimidation that occurs in the workplace. It can be instigated by criminals, customers, co-workers, or someone you have a personal relationship with. This course will raise awareness of the consequences of workplace violence and describe how to recognize warning signs so you and your coworkers can avoid these dangerous situations. | 0.25 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #1 | Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well. | 3 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #2 | | 3 | Intermediate |
| Virginia 2017 NEC 3 Hour CE Program #3 | Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements. | 3 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Virginia 2017 NEC 3 Hour CE Program #4 | Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables | 3 | Intermediate |
| Walking and Working Surfaces | Slips, trips, and falls constitute the majority of general industry accidents, second only to motor vehicle accidents. They cause 15% of all accidental deaths, and are third only to motor vehicles and violence as a cause of fatalities. The OSHA standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed and if appropriately applied, can reduce lost work time. This interactive online course details the OSHA standard in a practical format with easy to implement solutions to provide a workplace that is free from hazards to better protect the workplace and reduce unnecessary costs. | 0.5 | Intermediate |
| Warning Signs and Labels (BBWSAL0CEN) | This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Washington Electrical Contractor 4 hour program #1 | This 4-hour course is formatted in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices tha | 4 | Intermediate |
| Wastewater Treatment and Reclamation: Asset or Liability | Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and throw it in the ocean nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the water from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant. | 1 | Intermediate |
| Water Industry Hydraulics | This interactive online course covers the concepts, calculations, and operational uses of hydraulics in the water industry, and will examine the physics behind certain operations and processes within the water treatment industry. Subjects included in the course are density and specific gravity, pressure and force, head, head loss, pumping rates and pump heads, flow rates, and flow measuring devices. This course will examine each of these concepts in detail and explain their application. | 1 | Intermediate |
| Water Industry Maintenance on Pumps, Motors, and Circuits | In your career as a water operator, you will work with many different types of pumps, motors, and circuitry. These components provide the beating heart of the water system, serving as the force that moves water through the plant for processing. This interactive online course will teach water operators how to properly work with and maintain a wide variety of pumps, motors, and circuits. This course will also identify how methods of corrosion control, proper pump safety, and the best techniques for moving pumps. | 1 | Intermediate |
| Water Treatment: Wastewater, Part 1 | Industrial facilities use large quantities of water for purposes such as cooling, generating steam, cleaning, and process operations. After the water has been used, it typically has to be treated before it can be safely discharged or recycled to be used again. This course will explain the wastewater treatment process by looking at the stages of wastewater treatment, including primary treatment, intermediate treatment, and secondary treatment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Water Treatment: Wastewater, Part 2 | This course is designed to familiarize participants with basic concepts associated with treating industrial wastewater so that it can be safely reused or discharged into the environment, how filtration and activated carbon adsorption can be used in tertiary treatment, and how final effluent quality standards affect the discharge of wastewater. It will also describe general operator responsibilities in wastewater treatment and specific operator responsibilities in activated sludge systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Water Treatment: Water for Plant Systems, Part 1 | This course is designed to familiarize participants with basic concepts associated with removing dissolved solids and gases from water, and with the safe use of chemicals in water treatment. After completing this course, participants should be able to describe ways in which dissolved solids and gases can cause problems in plant equipment. They should also be able to describe how these impurities can be removed by devices such as water softeners, demineralizers, activated carbon filters, aerators, and de-aerators. In addition, they should be able to explain how chemicals are used in water treatment and identify safety precautions associated with the use of chemicals. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Water Treatment: Water for Plant Systems, Part 2 | This course is designed to familiarize participants with basic concepts associated with removing dissolved solids and gases from water, and with the safe use of chemicals in water treatment. After completing this course, participants should be able to describe ways in which dissolved solids and gases can cause problems in plant equipment. They should also be able to describe how these impurities can be removed by devices such as water softeners, demineralizers, activated carbon filters, aerators, and de-aerators. In addition, they should be able to explain how chemicals are used in water treatment and identify safety precautions associated with the use of chemicals. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 2 | Intermediate |
| Water-Based Fire Suppression Systems | With 3,000 deaths and 16,000 injured each year, fire continues to make its mark on society. In addition, about 100 firefighters each year die in the line of duty. Property losses due to fire reach almost $12 billion a year, and most of these deaths and losses are preventable. In this interactive, online course, you will learn the basic, but critical, aspects of water based fire suppression systems. This course will discuss deluge systems, preaction systems, dry pipe systems, water mist systems, standpipe systems, and fire hydrants. The information you gain from this course will enhance your ability to appreciate the challenges of the fire protection system designer, trying to integrate their system with other disciplines. Utilizing this real-life knowledge will ensure a safe and code compliant project regardless of your contribution to the project. | 1 | Fundamental |
| Weighing and Measuring Techniques | This course presents material related to weighing and measuring techniques commonly performed in laboratories. It begins by describing the operation of two types of instruments used to make mass measurements: mechanical and electronic balances. Then the techniques of reading various volumetric measuring devices (including graduated cylinders, pipettes, and burettes) are demonstrated. Next, the course presents demonstrations of how to make linear measurements using calipers and a measuring microscope. The course concludes with a segment on temperature measurements that describes the techniques used to read alcohol and mercury thermometers and to check the accuracy of liquid-filled thermometers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| What's New in Excel 2019 | Updates In Excel 2019 Optimize The Worlds Most Popular Spreadsheet For Modern Business Making It Easier To Draw, Add Graphics, Manipulate Text, and More!<br>The updated Microsoft Excel 2019 includes new tools and capabilities that can help regular users and new users alike. | 0.75 | Intermediate |
| What's New in PowerPoint 2019 | Impress Your Peers with the Latest and Greatest Features of PowerPoint 2019!<br>Microsofts latest release of PowerPoint 2019 packs quite a punch. With 3D models and vector graphics, your presentations can be more professional and visually pleasing than ever before. The new Morph transition and Zoom features can turn a boring slideshow into a guided tour. Updates to the Recording features make it easier than ever to create and share recorded presentations. Last but not least, with added features for Translation, Dictation, and Accessibility, PowerPoint is now truly a tool for everyone. | 1.25 | Intermediate |
| What's New in Word 2019 | New Editing and Image Features Improve The Worlds Most Popular Document App<br>The new Microsoft Word 2019 includes a slew of new tools and capabilities that can help regular users and new users alike. | 1.25 | Intermediate |
| What's New in Adobe CC 2015? | Adobe Certified Expert Amy Roberts takes us through all the new features and updates in Adobe Creative Cloud 2015s Premiere Pro, After Effects, Adobe Stock, and Audition, with quick looks at new mobile collaboration tools Adobe Hue, Premiere Clip, and Adobe Color. | 1.5 | Intermediate |
| What's New in Office 2016? | Learn how Office 2016 makes it easier than ever to save your work to the cloud, share and collaborate with others, and produce professional documents. Microsoft Office 2016 is an evolutionary improvement that refines dozens of features and adds a few new tricks too. In this course Kelly Vandever and Jason Farr explore the improvements to Microsoft Office in 2016. | 1 | Intermediate |
| Wind Design Using ASCE 7-16 | Have you kept current with ASCE's building design provisions? This interactive online course will describe the wind design changes that have occurred in ASCE 7-16 and how those changes will affect the practice of wind design when the 2018 building codes are adopted by local jurisdictions or when practitioners begin to use the revised standard. | 2 | Intermediate |
| Windows 10 Essentials | This Course Is For People New To Windows 10 - Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. Windows 10 combines the best features of Windows 8 with a more traditional navigation structure and layout, plus some new modern benefits. | 1 | Fundamental |
| Windows 8.1 Essentials | This Course Is For People New To Windows 8 Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality<br>When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. In fact, Windows 8 represents the biggest change in the Windows operating system since Windows 95. | 0.5 | Fundamental |
| Winning Proposals 1: Preliminary Steps & Planning Strategies | Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Winning Proposals 2: Effective Design & Development | Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Winning Proposals 3: Components of a Successful Proposal | Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You"ll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Winning Proposals 4 & 5: Final Considerations & Evaluations | Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between $5000 and $9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You"ll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Fundamental |
| Wood and Insulation Basics | Almost any type of construction or remodel job, whether a do-it-yourself weekend project or a professional one, requires basic knowledge about which wood to choose, as well as what kind of insulation works best for any given situation. Knowing basic details about different types of wood and the proper use of insulation will help you complete your projects more efficiently. | 0.25 | Intermediate |
| Work Life Balance | Do you live to work or work to live? In this course you will explore your motivation and priorities, and discover how the answers to strategic questions can help you create a healthy rewarding balance between the activities in your life. Through interactive assignments and a rich multimedia process, this course will help you realign with your priorities and experience the life you desire. | 0.5 | Intermediate |
| Working Effectively with Building Officials and Inspectors | Who is an Authority Having Jurisdiction? How should you communicate with them? Anyone associated with building design and construction will eventually interact with a building official or inspector. This includes Fire Marshals, Health Departments, Planning Departments, local gas and electric companies and water and sewer departments. Having a positive and professional relationship will go a long way in creating a cost effective, timely and safe project. This interactive online course will present a number of techniques to use to ensure a productive outcome including: knowing the applicable codes, being professional, first impressions, understanding the role of the local AHJ, knowing when to appeal an unfavorable ruling, knowing when to accept an unfavorable ruling, and establishing your credentials. | 1 | Fundamental |
| Working on De-energized Transmission Lines | The purpose of this course is to teach principles and practices for working safely on de-energized transmission lines. The course explains how a de-energized line could become energized if the proper safety practices are not followed. An approach to de-energizing, isolating, testing, and grounding a transmission line is presented. At the conclusion of this course, participants should be able to describe the dangers of a de-energized line's becoming energized. They should be able to describe how to safely de-energize, isolate, test, and ground a transmission line. They should also be able to describe or demonstrate how to use temporary grounds and personal grounds. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings. | 1 | Intermediate |
| Worksite Safety 01: OSHA Safety Introduction | The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 02: OSHA Electrical Safety | OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems.<br>OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 2 | Fundamental |
| Worksite Safety 03: OSHA Fall Protection | Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR,Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some do's and don'ts for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 04: OSHA Struck-By & Caught-Between Accidents | Struck-by and caught-between accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics.<br>OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1.5 | Fundamental |

# Industrial Complete (Continued)

| Title | Description | Hours | Level |
|---|---|---|---|
| Worksite Safety 05: OSHA Personal Protective Equipment | Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 06: OSHA Scaffolds | An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 07: OSHA Cranes & Other Hoists | Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 08: OSHA Power Tools and Excavations | It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 09: OSHA Materials Storage | The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 10: OSHA Demolition | Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 1 | Fundamental |
| Worksite Safety 11: OSHA Hazards in Communication | There are already more than 650,000 hazardous chemical products in circulation around any number of workplaces in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program. | 0.5 | Fundamental |
| Wrenches and Hammers | Wrenches and hammers are two of the most commonly used tools. From do-it-yourself weekend projects in the garage at home to large scale industrial construction, it is almost inevitable that wrenches and hammers of one kind or another will play a significant role. They are incredibly helpful, and make difficult jobs much easier and more efficient. This course will describe the different types of wrenches and hammers available as well as safe work practices for using them. | 0.5 | Intermediate |
| Writing in Plain Language | Write emails and documents that are read, understood, and acted on. We are overwhelmed with information today—in both our personal and business lives. Sometimes it's better to get straight to the point, in a way that doesn't waste your reader's time yet doesn't compromise your professionalism either. This course teaches you how to use plain language to address your reader's needs. What do they really need to know? What do you want them to do? We'll teach you how to think about your reader's purpose and to write for them so they get the message and your writing does its job. | 1.25 | Fundamental |
| WSI - Groundskeeping Safety | After a frightening incident, expert workplace investigators are called to crack the case. In the midst of the story, viewers will learn about the hazards of exposure to the various machinery and elements of outdoor work environments. In this unique video, emphasis is placed on working in the elements and how to recognize, prevent and handle heat stress and a variety of other outdoor situations. This landscaping safety video is designed to prevent complacency from entering into your landscaping training. | 0.25 | Fundamental |

VectorSolutions™

## LEARNING MANAGEMENT SYSTEM

### Assess, Manage and Develop Learning and Talent

Combine our best-in-class training courses with our all-in-one learning and talent management system for a robust solution for managing safety, compliance, license/credentials, and much more.


### Assess

- Self assessments
- Competency assessments
- Badging
- Task verification

### Manage/Report

- Credential management
- Tracking & reporting on learning goals
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- Create user groups and attributes

### Develop

- Custom credential creation
- Custom course builder
- Social collaboration forums
- Multilngual interface

## Innovative Technology Solutions

### Knowledge Assessments

Identify the skills gaps between your employees' existing knowledge, skills and abilities vs. their development goals. Use this tool to identify employee skills deficiencies and automatically prescribe necessary training.

### Incident Tracking

Our cloud-based Incident Tracking functionality allows you to generate more timely, accurate incident reports, and to take a more proactive approach to managing risk by identifying areas prone to accidents.

### Vector Scheduling

Solve complex employee scheduling and resource management headaches, oversee employee hours, manage overtime, simplify communication and much more with our innovative scheduling solution.

### Risk Reporting, Emergency Communication, & Health Assessment Mobile Platform

Use our leading mobile platform for safety and security risk reporting, emergency communications, and COVID-19 health assessments and mitigation. Whether it's physical safety and security risks, mental health, sexual harassment and assault, or COVID-19 health risks, our LiveSafe mobile platform provides all of the tools necessary to keep your people informed and safe.


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4890 West Kennedy Blvd, - Suite 300 Tampa, FL 33609