

Advanced Manufacturing— A New Way to Learn

BUILD A SMARTER, SAFER WORKFORCE

Use Vector Solutions' online maintenance training to ensure your maintenance professionals of all levels have the required knowledge and skills to keep equipment in safe, working order. Enhance your team's knowledge of theories, systems, equipment, instrumentation, and continuous improvement procedures with 450+ engaging and up to date interactive courses.

In-Demand Manufacturing Topics

Immerse learners in scenarios using a powerful mixture of 3D animation and presentations from industry experts. From Total Productive Maintenance (TPM) training to essential maintenance courses, we offer your team members the information they'll need to succeed.

- › 2020 NEC® Changes
- › Asset Condition Management
- › Compressors
- › Continuous Process
- › Core Industrial Skills
- › Electrical Maintenance
- › Equipment and Tools
- › Heat Exchangers
- › Heating and Cooling Systems
- › Hydraulics and Pneumatics
- › Instrumentation
- › Lean Manufacturing and 5S
- › Maintenance and Reliability
- › Math and Science Basics
- › Measurement and Sensors
- › Mechanical Maintenance
- › Motors, Drives, and Conveyors
- › Pipes and Valves
- › Plant Maintenance
- › Process Control
- › Programmable Logic Controllers (PLCs)
- › Pumps
- › Quality Tools
- › Shafts
- › Six Sigma
- › Total Productive Maintenance (TPM)
- › Vibration
- › Welding

Continuous Improvement

Asset Condition Management

Applied Vibration Analysis: Introduction
Applied Vibration Analysis: Collecting Spectral Data
Applied Vibration Analysis: Analyzing Spectral Data
Applied Vibration Analysis: Analyzing Bearing Vibrations
Applied Vibration Analysis: Analyzing Gear Vibrations
Applied Vibration Analysis: Analyzing Fan Vibrations
Applied Vibration Analysis: Analyzing Pump Vibrations
Applied Vibration Analysis: Analyzing Motor Vibrations
Asset Condition Management: Vibration Analysis Training
Asset Condition Management: Alignment and Balancing Training
Asset Condition Management: Motor Testing
Asset Condition Management: Setting Up an Oil Analysis Program

Current Good Manufacturing Practices (cGMP)

cGMP Essentials: Intro to cGMP
cGMP Essentials: Change Control
cGMP Essentials: Data Integrity
cGMP Essentials: Deviation and CAPA
cGMP Essentials: Good Personal Hygiene

Lean Manufacturing and 5S

Lean Manufacturing: Value and Waste
Lean Manufacturing: Pull Systems
Lean Manufacturing: Value Stream Mapping
Lean Manufacturing: Visual Management
Lean Manufacturing: Standardized Work
Lean Manufacturing: Poka-Yoke
Lean Manufacturing: Kaizen
Lean Manufacturing: Continuous Improvement and the PDCA Cycle
Lean Manufacturing: Determining the Voice of the Customer
Lean Manufacturing: Kanban
5S Methodology
Understanding Facility Costs
Industrial Housekeeping
The 5S System: An Introduction to 5S
The 5S System: Workplace Scan and Sort

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The 5S System: Set in Order and Shine
The 5S System: Standardize and Sustain
The 5S System: 5S for Safety - New Eyes for the Shop Floor
Essentials of Lean Manufacturing

Quality

ISO 9000
Centerlining Methodology
Meeting Customer Expectations
Seven Basic Quality Tools
Essentials of Six Sigma

Reliability

Equipment Maintenance and Reliability
Operator Basic Care
Reliability Engineering Essentials
Reliability Essentials for Operators and Technicians

Total Productive Maintenance (TPM)

Overall Equipment Effectiveness
Total Productive Maintenance: Introduction
Total Productive Maintenance: Overall Equipment Effectiveness
Total Productive Maintenance: Preventive Maintenance
Total Productive Maintenance: Predictive Maintenance

Electrical Maintenance

Basic Electrical Theory

AC Fundamentals Review
Alternating Current
Basic Electricity Review
Current, Voltage, and Resistance
DC Fundamentals Review
Direct and Alternating Current
Electrical 2: Grounding
Electromagnetic Induction
ESD Precautions
Grounding
Kirchhoff's Laws
Lighting Basics

Electrical Maintenance (continued)

Magnetism and Electromagnetism Basics

Ohm's Law

Sources of Electricity, Part 1

Use of Ohm's and Kirchoff's Laws in DC Circuits

Electric Motors

AC Motor Basics

AC Motor Operation and Types

DC Motor Operation

DC Motor Types

Electric Motor Basics

Electrical 2: Motors: Theory and Application

Electrical Equipment: AC and DC Motors

Electrical Equipment: Motor Controllers and Operation

Motor Control Circuits and Functions

Motor Overload Protection

Motor Starters

Electrical Circuits and Components

Batteries

Battery Cell Construction, Maintenance, Specifications, and Types

Battery Types and Charging Theory

Capacitors, Part 1

Capacitors, Part 2

Circuit and Switch Basics

Circuits and Power

Conductors

Construction of AC and DC Circuits

Contactors and Relays

Electrical 2: Circuit Breakers and Fuses

Electrical Equipment: Electrical Production and Distribution

Electrical Switches

Electrical Systems

Electrical Systems and Equipment, Part 1

Electrical Systems and Equipment, Part 2

Electromagnetic Relays

Fuses

Ground Fault Circuit Interrupters

Insulators

Motor Branch Circuit Protection

Parallel Circuits

Relay Basics and Types

Resistors

Series Circuits

Series-Parallel Circuits

Transformers

Transformers, Breakers, and Switches

Electrical Schematics

Electrical 1: Electrical Diagrams

Reading Electrical Diagrams, Part 1

Reading Electrical Diagrams, Part 2

Electrical Test Equipment

Digital Multimeters and Troubleshooting

Electrical Meters and Measurements

Hand Tools for Electrical Work

Non-conductive Tools

Using Electrical Test Equipment

Electrical Wiring

Electrical 1: Cable Tray

Electrical 1: Commercial and Industrial Wiring

Electrical 2: Boxes and Fittings

Electrical 2: Electrical Lighting

Electrical 2: Installation of Electrical Services

Electrical Installations 1: Electrical Laws, Components and Circuits

Electrical Wiring and Connections

Electrical Wiring: Cables and Conductors

Electrical Wiring: Conduit Installation

Electrical Wiring: Splices and Terminations

Raceways

Fundamentals

AC Generator Maintenance

AC Motor Controller Maintenance, Part 1

AC Motor Controller Maintenance, Part 2

DC Motor Controller Maintenance, Part 1

DC Motor Controller Maintenance, Part 2

DC Motor Maintenance

Electrical 1: Electrical Safety

Electrical Maintenance: Battery Systems

Electrical Maintenance: Fasteners

Electrical Maintenance: Introduction to the NEC

Electrical Maintenance: Relays, Part 1

Electrical Maintenance: Relays, Part 2

Electrical Maintenance: Troubleshooting Electrical Circuits

Maintenance of Air and Oil Circuit Breakers

Maintenance of High-Voltage Circuit Breakers

Maintenance of Low-Voltage Circuit Breakers

Single-Phase AC Induction Motor Maintenance

Synchronous Motor and Controller Maintenance

For more information about BizLibrary's content, please contact your account representative.

Three-Phase AC Induction Motor Maintenance

Transformer Maintenance

Troubleshooting Systems and Circuits

Generators

AC Generator Basics

DC Generator Basics

Industrial Electronics

Diodes and Semiconductor Basics

Electrical Soldering

Radio Operation, Hardware, Telephone Systems, and Electromagnetic Waves

National Electrical Code

2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy

2020 NEC® Changes: Branch Circuit GFCI Protection

2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures

2020 NEC® Changes: Devices, Lighting, and Gear

2020 NEC® Changes: Equipment for General Use

2020 NEC® Changes: Focus on Wiring Methods

2020 NEC® Changes: General Requirements

2020 NEC® Changes: Overvoltage and Grounding & Bonding

2020 NEC® Changes: Process Review and Updated Articles

2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems

2020 NEC® Changes: Special Equipment

2020 NEC® Changes: Special Occupancies

2020 NEC® Changes: Wiring and Protection

Variable Speed Drives

Variable Speed Drives: Common Applications

Variable Speed Drives: Controllers and Troubleshooting, Part 1

Variable Speed Drives: Controllers and Troubleshooting, Part 2

Variable Speed Drives: Installation

Variable Speed Drives: Introduction to VSDs

Variable Speed Drives: Programming AC Controllers

Variable Speed Drives: Programming DC Controllers

Variable Speed Drives: System Troubleshooting, Part 1

Variable Speed Drives: System Troubleshooting, Part 2

Variable Speed Drives: Systems and Integration

Industrial Instrumentation and Control

Continuous Process

Continuous Process: Field Devices: Analytical

Continuous Process: Field Devices: Analog Configuration

Continuous Process: Field Devices: Digital Configuration with a DCS

Continuous Process: Principles

Continuous Process: Field Devices: Using Field Communicators

Continuous Process: Field Devices: Level and Flow

Continuous Process: Multiple Loop Control

Continuous Process: Pneumatic Controls

Continuous Process: Field Devices: Pressure, Temperature, and Weight

Continuous Process: Smart Controllers

Continuous Process: Single Loop Control

Continuous Process: Troubleshooting DCS I/Os: Procedures

Continuous Process: Tuning Loops

Continuous Process: Troubleshooting Loops

Instrumentation

ControlLogix®: Basic Programming

ControlLogix®: Communications and Advanced Programming

ControlLogix®: Configuring Hardware and Software

ControlLogix®: Introduction to Basic System, Software & Hardware Components

ControlLogix®: The Project Structure

ControlLogix®: Troubleshooting

Core: Principles of Calibration

Distributed Control Systems Introduction

Flow, Level, and Pressure Sensors

Fluid Flow Measurement, Part 1

Fluid Flow Measurement, Part 2

Instrumentation and Control: Automatic Process Control, Part 1

Instrumentation and Control: Automatic Process Control, Part 2

Instrumentation and Control: Introduction to Control and Data Systems

Instrumentation and Control: Introduction to Process Control

Instrumentation and Control: Measurement of Concentration

Instrumentation and Control: Measurement of Density, Clarity, and Moisture

Instrumentation and Control: Measurement of Level and Flow

Instrumentation and Control: Measurement of Pressure and Temperature

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Industrial Instrumentation and Control (continued)

Instrumentation and Control: The Human-Machine Interface

Liquid Level Measurement, Part 1

Liquid Level Measurement, Part 2

Measurement - Temperature, Force, and Fluid Properties

Photoswitches, Proximity Sensors, and Feedback Devices

Pressure and Pressure Measurement

Pressure Gauges and Calibration, Part 1

Pressure Gauges and Calibration, Part 2

Process Control Fundamentals

SMART Instrumentation in Biological and Chemical Treatment

Temperature and Light Sensors

Temperature and Temperature Measurement, Part 1

Temperature and Temperature Measurement, Part 2

Process Control

Process Control Charts

Programmable Logic Controllers

PLC Basics

PLC Ladder Logic

PLCs: Troubleshooting Software, Part 1

PLCs: Troubleshooting Software, Part 2

Programmable Logic Controllers (PLC's) - Introduction and Theory of Operations

Programmable Logic Controllers (PLC's) - Programming a PLC System

Programmable Logic Controllers (PLC's) - Design and Installation of a PLC System

Programmable Logic Controllers (PLC's) - Hardware, Inputs, Outputs, Discrete/Analog

Programmable Logic Controllers (PLC's) - Logic Operations

Programmable Logic Controllers: Human-machine Interfaces and Troubleshooting

Programmable Logic Controllers: I/O Communication

Programmable Logic Controllers: Installing and Maintaining

Programmable Logic Controllers: Introduction to Programming, Part 1

Programmable Logic Controllers: Introduction to Programming, Part 2

Programmable Logic Controllers: Ladder Logic and Symbolology

Programmable Logic Controllers: Networks and Network Troubleshooting

Programmable Logic Controllers: Numerics, Part 1

Programmable Logic Controllers: Numerics, Part 2

Programmable Logic Controllers: Program Entry, Testing, and Modification, Part 1

Programmable Logic Controllers: Program Entry, Testing, and Modification, Part 2

Programmable Logic Controllers: Programming Functions, Part 1

Programmable Logic Controllers: Programming Functions, Part 2

Programmable Logic Controllers: Troubleshooting Hardware

Industrial Skills

Automatic Identification and Data Collection

RFID Basics

RFID Implementation

Scanning and Tracking Overview

RFID Tags

RFID Readers

RFID Applications

Blueprints, Schematics, and Diagrams

Diagrams: Blueprints

Diagrams: Industrial Process Systems

Diagrams: Piping and Instrumentation

Process and Instrumentation Diagrams

Electrical Drawings and Schematics

Blueprint Basics

Symbols, Standards, and Schematics

Computer Basics

Networks: Fiber Optic Systems

Networks: Setting Up and Troubleshooting

Networks Introduction

Logic Technology, Logic Functions, Sequential Logic, and Analog Conversion

Databases, Spreadsheets, and Word Processing

Buses and Storage

Input and Output Devices

Equipment and Tools

Forklifts: Operation

Hand Tools, Part 1

Hand Tools, Part 2

Auxiliary Vessels

Portable and Emergency Equipment

Table Saw Basics

Table Saw Operations

Fastener Basics

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Wrenches and Hammers
Clamps, Blades, Saws, and Bits
Precision Measuring Tools

Industrial Materials

Plastic and Rubber Basics
Painting and Coating Basics
Wood and Insulation Basics

Math Concepts

Math: Basics
Industrial Math: Algebra
Industrial Math: Basic Operations, Part 1
Industrial Math: Basic Operations, Part 2
Industrial Math: Formulas, Graphs, and Trends
Boolean Algebra, Part 1
Boolean Algebra, Part 2
Boolean Algebra, Part 3
Mathematics - Number Bases and Powers of Ten
Measurement - Dimensions
Mathematics - Percentages and Fractions

Operator Responsibilities

Operator Responsibilities: Communication
Operator Responsibilities: Trends, Maintenance, and Emergencies
Operator Responsibilities: Advanced Operator Responsibilities
Operator Responsibilities: Basic Operator Responsibilities
Operations: Basic Principles
Operator Responsibilities: Introduction
Operator Responsibilities: Plant Production and Safety

Rigging and Lifting

Advanced Rigging, Part 1
Advanced Rigging, Part 2
Rigging: Basic Lifting
Rigging: Ladders and Scaffolds
Basic Rigging, Part 1
Basic Rigging, Part 2

Science Concepts

Plant Science: Basic Electrical Circuits
Plant Science: Basic Electrical Principles
Chemistry: Basic Principles, Part 1
Chemistry: Basic Principles, Part 2
Chemistry: Material Balancing
Chemistry: Reaction Rates
Plant Science: Fluid Systems

Plant Science: Gases and Flowing Liquids
Plant Science: Forces and Machines
Plant Science: Solids and Liquids
Fundamentals of Process Solubility
Process Chemistry
Physics Basics
Matter States and Temperature
Basic Machines and Motion
Plant Science: Heat
Plant Science: Heat Transfer
Plant Science: Process Dynamics and Measurement

Troubleshooting

Problem Solving Strategies
General Troubleshooting Strategies

Welding

Arc Welding Basics
Hot Metal Cutting Processes
Arc Welding Processes
Metal Fabrication
Oxyacetylene Welding Equipment and Safety
Metals - Physical Properties and Types
Metals - Identifying Steel and Iron

Mechanical Maintenance

Bearings

Bearings Basics
Rolling Contact Bearings, Part 1
Rolling Contact Bearings, Part 2
Sliding Surface Bearings, Part 1
Sliding Surface Bearings, Part 2

Compressors

Centrifugal Compressors
Compressed Air Fundamentals
Compressors: Centrifugal and Axial
Compressors: Operation of Centrifugal and Axial Types
Compressors: Positive Displacement
Reciprocating Compressors, Part 1
Reciprocating Compressors, Part 2

Conveyors

Conveyor Belt Replacement
Conveyor Types and Components

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Mechanical Maintenance (continued)

Fans and Dryers

Fans

Geometric Dimensioning and Tolerancing (GD&T)

Geometric Dimensioning and Tolerancing (GD&T): Introduction

Geometric Dimensioning and Tolerancing (GD&T): Form and Size Tolerances

Geometric Dimensioning and Tolerancing (GD&T): Datum Selection and Interpretation

Geometric Dimensioning and Tolerancing (GD&T): Orientation Tolerances

Geometric Dimensioning and Tolerancing (GD&T): Position Tolerances

Geometric Dimensioning and Tolerancing (GD&T): Profile and Runout Tolerances

Heat Exchangers

Heat Exchanger Basics

Heat Exchangers: Condensers and Reboilers

Heat Exchangers: Cooling Towers

Heat Exchangers: Operation of Shell and Tube Types

HVAC

ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality

ASHRAE Essentials: 55-2017 - Thermal Environmental Conditions for Human Occupancy

ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings

Condensate Recovery and Steam Traps

HVAC - Heating and Cooling

HVAC - Hot Water and Ventilation

HVAC Basics

Hydraulics

Hydraulic System Basics

Hydraulic System Equipment

Hydraulic System Valves and Components

Hydraulics: Actuators

Hydraulics: Component Inspection and Replacement

Hydraulics: Diagrams

Hydraulics: Fluid and Reservoirs

Hydraulics: Principles and Circuits

Hydraulics: Pumps

Hydraulics: Routine Maintenance

Hydraulics: Troubleshooting

Hydraulics: Valves, Part 1

Hydraulics: Valves, Part 2

Industrial Refrigeration

Refrigeration - Compressors, Valves and Piping

Refrigeration - Refrigerant Properties

Refrigeration - Refrigerant Selection

Refrigeration - System Components

Refrigeration - System Troubleshooting

Refrigeration - Vapor-Compression Cycle

Lubrication

Equipment Lubrication: Using Lubricants

Lubricants and Oils

Lubrication Basics

Mechanical Drives

Belt Drive Adjustment

Belt Drive Basics

Chain Drive Basics

Clutch Basics

Equipment Drive Components: Gear, Belt, and Chain Drives

Gear Drive Basics

Gears - Overhaul

Gears - Types and Characteristics

Mechanical Maintenance: Basic Terms of Maintenance

Mechanical Maintenance: Couplings

Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches

Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers

Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts

Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain

Mechanical Maintenance: Maintaining V-Belts

Pipes and Valves

Pipes and Valves: Basic Pipefitting Skills

Pipes and Valves: Calculating Offsets

Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe

Pipes and Valves: Installing Pipe Hangers and Supports

Pipes and Valves: Installing Screw and Welded Pipe

Pipes and Valves: Pipes and Pipe Fittings

Pipes and Valves: Special Calculations

Pipes and Valves: Valve Maintenance

Pipes and Valves: Valve Types and Operation

Piping and Auxiliaries: Basic Components and Functions

Piping and Auxiliaries: System Components and Operation

Safety Valves

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Valve Basics
Valve Common Problems
Valve Performance
Valves: Basic Types and Operation, Part 1
Valves: Basic Types and Operation, Part 2
Valves: Electric and Hydraulic Actuators
Valves: Introduction to Actuators

Pneumatics

Compressors and Pneumatic Tools
Industrial Pneumatic Technology: Aftercoolers, Driers, and Receivers
Industrial Pneumatic Technology: Air Preparation
Industrial Pneumatic Technology: Check Valves, Cylinders, and Motors
Industrial Pneumatic Technology: Compressors
Industrial Pneumatic Technology: Control of Pneumatic Energy
Industrial Pneumatic Technology: Directional Control Valves
Industrial Pneumatic Technology: Energy Transmission
Industrial Pneumatic Technology: Excess Flow Valves, Boosters, and Sequence Valves
Industrial Pneumatic Technology: Flow Control Valves, Silencers, and Quick Exhausts
Industrial Pneumatic Technology: Force Transmission
Pneumatic Basics
Pneumatics: Actuators and Positioners
Pneumatics: Basic Pneumatic Control Systems
Pneumatics: Basic Pneumatic Control Systems and Diagrams
Pneumatics: Controllers
Pneumatics: Indicators and Hand-Auto Control Stations
Pneumatics: Multi-Element Pneumatic Control Systems
Pneumatics: Pneumatic Instrument Tubing
Pneumatics: Self Balancing Instruments
Pneumatics: Transmitters
Pneumatics: Troubleshooting Pneumatic Instrument Systems
Pneumatics: Tuning Pneumatic Control Systems

Pumps

Centrifugal Pumps
Efficient Pump Operation
Multistage Centrifugal Pump Maintenance
Positive Displacement Pump Maintenance Basics
Pump Basics
Pump Types and Applications
Pumping Stations - Pumps, Motors and Electrical Systems

Pumps: Fundamentals of Centrifugal Types
Pumps: Multistage Centrifugal
Pumps: Operation of Centrifugal Types
Pumps: Performance and Inspection
Pumps: Reciprocating Positive Displacement Types
Pumps: Rotary Positive Displacement Types

Seals

Mechanical Seals
Seals: Gaskets and Packing

Shaft Alignment

Shaft Alignment, Part 1
Shaft Alignment, Part 2
Shaft Alignment: Reverse Dial and Laser
Shaft Alignment: Rim and Face

Vehicle Maintenance

Delivery Truck Maintenance
Vehicle Brake Basics

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