



Foundation Series - 2.3 CEUs*

The Foundation Series consists of nine core subject areas required to succeed in industry operations and maintenance from a technical perspective: Overview of Industrial Facility Systems, Safety, Mathematics, Tools, Maintenance, Environment, Computers, Print Reading, and Science.

Industrial Facility Systems - 0.1 CEUs

Overview of Industrial Facility Systems

- Introduction to Industrial Systems
- Common Industrial Facility Support Systems
- Introduction to Industrial Standards
- Common Industrial Units of Measure

Safety - 0.3 CEUs

Industrial Facility Safety

- Common Hazards Encountered in Industrial Facility Hazards
- Dangers Associated with Electrical Current and Voltage
- Common Industrial Systems Installed for Personnel and Equipment

Fire Safety

- Fire Tetrahedron
- Common Classes of Fire
- Fire Prevention Techniques
- Extinguishing Fires

Hazardous Communications

- Importance of Hazardous Communication
- Hazardous Communication Requirements
- Hazardous Communication Programs

Lockout/Tagout

- Purpose of a Lockout/Tagout Program
- Principles of a Lockout/Tagout Program
- Lockout/Tagout Devices
- Authorized Employee Responsibilities

Electrical Safety

- Electrical Shock and Arc Flash
- Emergency Response Actions
- Electrical Safeguarding
- Electrical Personal Protective Equipment
- De-Energizing Electrical Equipment

Industrial Signage

- Common Industrial Signs
- Hazard Identification Color Code
- Industrial Floor Marking Code

Personal Protective Equipment

- Personal Responsibilities
- Industrial Personal Protective Equipment
- Care, Use, and Inspection of PPE
- Effects of Using Defective PPE

Benzene Awareness

- Benzene Awareness Training Overview

First Aid I

- First Aid Kits
- Evaluating Injured or Ill Persons
- Controlling External Bleeding
- Minor Burn Treatment
- Head, Neck, and Spinal Injury Care

First Aid II

- Poisoning
- Treatment of Choking
- Performing CPR
- AED Operation
- Stroke Symptoms

Hydrogen Sulfide

- Hydrogen Sulfide Awareness Overview

Mathematics - 0.8 CEUs

Whole Numbers

- Number Sets
- Addition
- Subtraction
- Multiplication
- Division

Fractions

- Fractions
- Common Denominators
- Reducing Fractions to Lowest Terms
- Addition and Subtraction
- Multiplication and Division

Decimals and Percentages

- Decimals
- Decimal and Fraction Conversion
- Percentages and Decimal Equivalents
- Addition and Subtraction
- Multiplication and Division

Exponents and Scientific Notation

- Exponents
- Radicals
- Scientific Notation
- Addition and Subtraction
- Multiplication and Division

Fundamentals of Algebra I

- Basic Algebraic Terminology
- Basic Operations
- Addition and Subtraction of Algebraic Expressions
- Multiplication and Division of Algebraic Expressions

Fundamentals of Algebra II

- Axioms
- Using Axioms
- Solving Algebraic Equations
- Ratios and Proportions

Fundamentals of Geometry I

- Geometry Uses
- Angles and Measurements
- Plane Geometry Terms
- Calculating Perimeters
- Calculating Areas

Fundamentals of Geometry II

- Parts of a Circle
- Circumference and Area of Circles
- Surface Area and Volume of Three-Dimensional Shapes

Fundamentals of Trigonometry

- Uses of Trigonometry
- Pythagorean Theorem
- Trigonometric Functions
- Trigonometric Identities

Scientific Calculator Use

- Basic Operations
- Percentages and Square Roots
- Scientific Notation
- Trigonometric Functionality

Fundamentals of Statistics I

- Tables and Graphs
- Mean, Median, and Mode
- Normal Distribution Curves

Fundamentals of Statistics II

- Standard Deviation
- Distribution Curve Analysis
- Rules of Probability
- Industrial Applications

Introduction to Calculus

- Industrial Uses of Calculus
- Derivatives
- Integrals

Tools - 0.2 CEUs

Hand Tools I

- Hand Tool Safety
- Hammers, Punches, and Prying Tools
- Screwdrivers and Wrenches

Hand Tools II

- Cutting Tools
- Gripping and Holding Tools
- Measuring Tools

Power Tools

- Power Tool Safety
- Stationary Power Tools
- Portable Power Tools

Maintenance - 0.2 CEUs

Preventive Maintenance

- Introduction to Preventive Maintenance
- Advantages
- Preventive Maintenance Programs
- Computer Maintenance Management Systems

Predictive Maintenance

- Predictive Maintenance Programs
- Tools and Techniques
- Benefits of Predictive Maintenance

Basic Troubleshooting

- Troubleshooting
- Troubleshooting Resources
- Normal System Operations and Normal Operation Parameters
- Common Method of Troubleshooting
- Troubleshooting Flowchart

Environment - 0.1 CEUs

Environmental Awareness

- Environmental Awareness
- Environmental, Health, and Safety Regulations
- Priority Pollutants
- Minimizing Pollution

Hazardous Materials

- Common Hazardous Materials
- Handling and Disposal Procedures
- Safety Precautions and Regulations

Computers - 0.1 CEUs

Computer Use Basics

- Basic Computer Components
- File Management and Naming Conventions
- Basic Networking Concepts
- Basic Commands

Computers in Industry

- Computer Systems
- Equipment Control and Monitoring Computers
- Portable Peripheral Devices

Print Reading - 0.1 CEUs

Print Reading Basics

- Common Industrial Prints
- Blueprints and Schematics
- Legend Use
- Title Blocks and Revisions
- Block Diagrams

Piping and Instrumentation Diagrams

- Piping and Instrumentation Diagrams
- Title Blocks, Revision Blocks, Notes, and Legends
- Piping and Instrumentation
- System Flow Paths

Science - 0.4 CEUs

Introduction to Chemistry

- Fundamental Concepts
- Compounds, Mixtures, and Solutions
- Chemical Properties
- Methods of Chemical Analysis

Water Chemistry

- Water Properties
- Types, Sources, and Effects of Water Impurities
- Sampling Methods
- Monitored Parameters
- Water Treatment Principles

Applied Physics I: Work, Energy, and Power

- Work, Energy, and Power
- Basic Types of Energy
- Potential vs. Kinetic Energy
- Levers and Inclined Planes
- Operation of Simple Machines

Applied Physics II: Laws of Motion

- English and Metric Units
- Conversion Tables
- Force, Mass, Velocity, and Acceleration
- Laws of Motion

Applied Physics III: Heat Transfer

- Heat vs. Temperature
- Temperature Scales
- Specific Heat
- Modes of Heat Transfer

Applied Physics IV: Fluid Mechanics

- Introduction to Fluids
- Pascal's Law
- Pressure, Force, and Area
- Fluid Flow and Pipe Area

Applied Physics V: Ideal Gas Law

- Introduction to Gases
- Ideal Gas Law
- Calculating Pressure Change

Applied Physics VI: Thermodynamics

- Zeroth Law
- First Law
- Second Law
- Third Law
- Industrial Applications