EPEC Silver Module 1: Lighting

Objectives

Upon completion of this module, you will be able to:

- Use facts and data to suggest appropriate lighting solutions for various outdoor applications.
- Evaluate facts and data supplied by manufacturer charts to suggest appropriate lighting solutions for industrial applications.
- Identify appropriate methods to calculate and supply requirements for lighting designs in a variety of applications.
- Recommend solutions based on a typical scenario that enables customers to effectively control their lighting systems.
- Help customers comply with local and national codes regarding emergency lighting systems.

Chapter Outline

Chapter One: Outdoor Lighting Application and Design

A. Outdoor Lighting Considerations
B. Outdoor Lighting Design
C. Sports Lighting

Chapter Two: Warehouse Lighting

Chapter Three: Industrial Applications

A. Economics of Quality Industrial Lighting
B. Industrial Lighting Design Considerations
C. Industrial Environments
D. Task Lighting

Chapter Four: Advanced Indoor Lighting Concepts

A. Healthcare and Special Facilities
B. Air-handling Luminaires

Chapter Five: Photometry and Lighting Calculations

A. Photometry
B. Lighting Calculations

Chapter Six: Advanced Emergency Lighting Systems

A. Emergency Lighting Considerations
B. Batteries

Chapter Seven: EPEC Assignment

A. EPEC Electrical System: The Condominium Lighting Project
B. EPEC Assignment

EPEC Silver Module 2: Load Considerations

Objectives

Upon completion of this module, you will be able to:

- Explore different electric heating opportunities.
- Define power loads and AC motor varieties.
- Identify communications relative to signaling devices.
- Differentiate between receptacles, such as changeout connectors and power conditioning.

Chapter Outline

Chapter One: Electric Heating Opportunities

A. General Heating and Marketing Considerations
B. Design Considerations for Heating Large Spaces and Spot Heating Areas
C. Product Opportunities
D. Basics of Industrial Process Heating Equipment
E. Application Calculations in Process Heat
F. Product Types and Benefits for Industrial Process Heating

Chapter Two: Power Loads and AC Motor Varieties

A. Air-Moving Equipment
B. Motor Concepts
C. AC Induction Motor Types

Chapter Three: Communications

A. Signaling Devices and Usage Considerations
B. Industrial Equipment Communication Needs

Chapter Four: Connectors and Receptacles

A. Changeout Connectors
B. Power-Conditioning Products
C. Grades in Wiring Devices

Chapter Five: EPEC Assignment

A. EPEC Electrical System: The Urgent Care Center
B. EPEC Assignment

EPEC Silver Module 3: Industrial Machinery

Objectives

Upon completion of this module, you will be able to:

- Describe common industry standards and their resources.
- Read ladder diagrams.
- Identify power and control portions of a circuit.
- Explain different combinations of starters.
- Choose in-floor wire management and fire stop products.
- Cite the differences between solid-state and mechanical breakers.
- Describe methods of wiring inside enclosures.

Chapter Outline

Chapter One: Industrial Standards

Chapter Two: Diagrams, Symbols, and Identification

Chapter Three: Control Circuits and Equipment

A. Combination Starters
B. Full-Voltage Reversing Starters
C. Multifunction Control Devices
D. Pressure Switch and Temperature Control Fundamentals

Chapter Four: Distribution System

A. Conductors Types
B. In-floor Wire Management
C. Firestop Products
D. Undercarpet Wiring Systems
E. Busway

Chapter Five: Electrical Protection and Service Entrance

Chapter Six: Fittings, Boxes, and Supplies

A. Wire Markers
B. Wiring Inside Enclosures
C. Structural Channel and Support

Chapter Seven: EPEC Assignment

A. EPEC Electrical System: Amusement Park Carousel
B. EPEC Assignment

EPEC Silver Module 4: Hostile & Hazardous Environments

Objectives

Upon completion of this module, you will be able to:

- Describe the difference between hostile and hazardous locations.
- Explain the components of the ignition triangle.
- Identify the probable series of events in a grain elevator explosion.
- Compare and contrast blackouts and brownouts.
- Define power conditioning and power factor correction.
- Describe the purpose of OSHA and CanOSH.
- Differentiate arc flash, arc blast, and shock effects.
- Select appropriate PPE (personal protective equipment) for common industrial contractor applications.

Chapter Outline

Chapter One: Hostile and Hazardous Locations

A. Hostile, Hazardous, Explosionproof, or All Three?
B. The Ignition Triangle and Hazard Classes
C. Reducing Sources of Trouble in the Ignition Triangle
D. EPEC Product Triangle Opportunities in Hostile and Hazardous Environments

Chapter Two: Power Problems and Prevention

A. Uninterruptible Power Supply Systems
B. Power Factor Correction and Power Conditioning
C. Automatic Transfer Switches and Standby Power
D. Code Considerations

Chapter Three: The Triangle and Safety in all Environments

A. OSHA and CanOSH
B. Shock, Arc Flash, Arc Blast, and NFPA70E
C. Personal Protective Equipment

Chapter Four: EPEC Assignment

A. EPEC Electrical System: Gas Station and Auto Repair Shop
B. EPEC Assignment

EPEC Silver: Final Exam

This exam presents 100 random questions based on the content presented in Silver Modules 1 through 4. There is no time limit for this exam, and you need to score 75% or higher to pass.

EPEC Silver: Capstone Project

Objectives

Upon completion of this module, you will be able to:

- Review plans and specifications.
- Create a bill of materials for the products selected.
- Determine the best product for each application.
- Develop a cut package of all selected products including related items from the EPEC Triangle.
- Consider product selection variables and trade-offs.

Chapter Outline

A. EPEC Electrical System: Propane Distribution Plant
B. EPEC Capstone Project