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## Basic Electrical Training For Industrial Applications

Contact us Today for a FREE quotation to deliver this course at your company's location.

<https://www.electricityforum.com/onsite-training-rfq>

Basic Electrical Training course is a general introduction to industrial electrical systems. The course teaches a basic understanding of how electrical equipment and systems operate in industrial, commercial and institutional facilities. Students will be presented with practical, real world examples that illustrate how power is distributed and used in plants and facilities.

The course will also deal with “Working with Industrial Electricity” – discussions and activities focus on real world, everyday electrical tasks performed on the job. Students will receive an introduction to either NFPA 70E or CSA Z462 arc flash/electrical safety standard information, as the starting point for all electrical work. Students will also learn how to choose the right tools, materials and clothing for the job and how to perform basic electrical repairs and installations. A discussion on proper wiring will be followed by practical tips for electrical troubleshooting. The course presents an overview of other common electrical work activities such as preventive maintenance.

This Basic Electrical Training course is designed to meet the training needs of junior

electrical maintenance personnel engaged in the daily troubleshooting of industrial electrical equipment. It is appropriate for electrical maintenance personnel in need of a review of electrical basics and an introduction to more complicated industrial electrical systems, integration and electrical test equipment. The course is also ideal for mechanical maintenance personnel that have a responsibility for plant electrical maintenance activities. This Basic Electrical Training course can be customized to specific components, test equipment, and documentation.

### **WHO SHOULD ATTEND**

- Machine Operators
- Mechanics
- Apprentice Electricians
- Electrical Technicians
- Non-electrical Tradespeople
- Non-electrical Engineers
- Cross-training Personnel and operations personnel who come into contact with control systems

### **STUDENTS RECEIVE**

- FREE 100-Page Digital Electrical Maintenance Handbook (Value \$20)
- \$100 Coupon Toward any Future Electricity Forum Event (Restrictions Apply)
- 1.4 Continuing Education Unit (CEU) Credits
- FREE Magazine Subscription (Value \$25.00)
- Course Materials in Paper Format

### **COURSE OUTLINE**

#### **DAY ONE**

## **Basic Electrical Fundamentals**

- AC and DC in Industrial and Commercial Power Systems
- Voltage, Current and Resistance; Ohm's Law
- Hands-on Circuit-building Activities with Field Components
  - Simple Circuits
  - Series Circuits
  - Parallel Circuits
  - Combination Circuits
- Using Multimeters to Measure Voltage, Current, and Resistance
- Verifying a Circuit is De-energized
- Modes of Failure: Open Circuits, Short Circuits, and Ground Faults
- Power: What it is, and How It's Determined
- Single-phase and Three-phase Power Systems

## **Electrical Test Equipment**

- Multimeters
- Voltage Testers
- Clamp-on Ammeter, Megohmmeters & Other Equipment

## **Basic Testing and Troubleshooting Techniques**

- Reading Electrical Single-Line Diagrams
- Discovering Branch Circuit Problems
- Control Circuit Troubleshooting
- Electrical Testing and Troubleshooting Techniques

## **Understanding Your Basic Facility Electrical System**

- Distribution Systems
- Electrical Floor Plans & Facility Wiring
- Low Voltage Major Components
- 100 V, 208 V and 600V Systems Examples
- Power Factor Correction
- Low Voltage Transformers
- Delta vs. Wye connected systems
- Low Voltage Automatic Transfer Switches
- Low Voltage Fuse Protection
- Low Voltage Power Circuit Breakers
- Molded Case Circuit Breaker
- Low Voltage Protection Schemes
- Switchgear and Circuit Breakers
- Metal Clad and Metal Enclosed Switchgears
- Overcurrent Protective Devices

## **DAY TWO**

### **Understanding Your Basic Facility Electrical System (Part 2)**

- Feeders
- Disconnects
- Motors, Panelboards, and Branch Circuits
- Motor Control Centers
- Backup Electrical Generators
- UPS Systems and Battery Systems
- Electrical Grounding Requirements
- Building Automation Systems
- Fire Protection Systems

### **Electrical Safety in the Workplace**

- Introduction to NFPA 70E/CSA Z462
- Hazards & Dangers of Electricity
- Shock, Arc Flash, and Arc Blast
- Personal Protective Equipment
- Lockout/Tagout (LOTO)
- Developing Safe Work Practices

### **Overview - NFPA 70b/CSA Z463 Electrical Maintenance Standards**

- Differentiate between proactive and reactive maintenance strategies
- Identify the best application for a range of maintenance strategies
- Understand the link between electrical maintenance and workplace electrical safety
- Become familiar with general maintenance practices such as insulation testing
- Gain knowledge of specialized equipment and equipment-specific maintenance

### **COURSE TIMETABLE**

#### **Both days:**

Start: 8:00 a.m.

Coffee break: 10:00 a.m.

Lunch: 12:00 noon

Finish: 4:30 p.m.

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