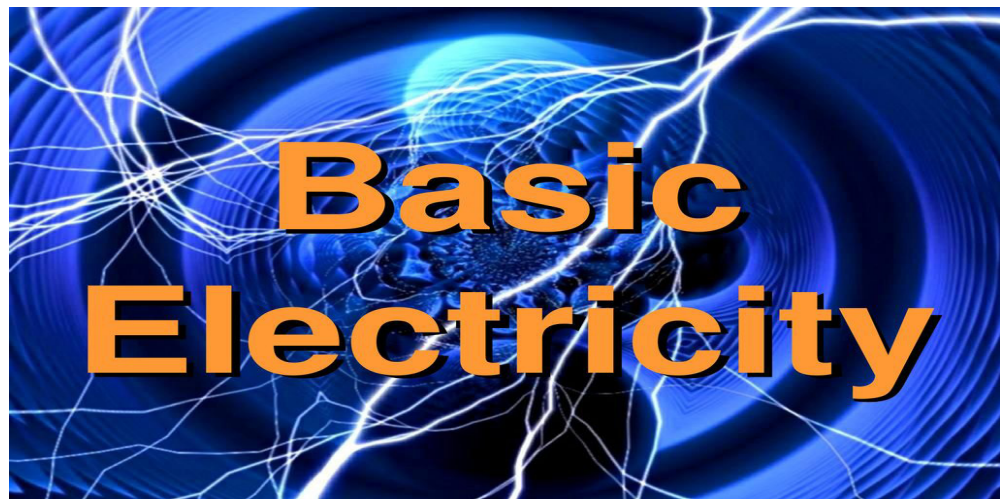


# Basic Electricity for Maintenance Technicians



This 2 Day class introduces students to electrical energy and how to apply basic laws, rules and analysis techniques to circuits.

Voltage Systems are covered along with Ohms Law, Circuit Types, and testing of Field Devices.

Students will learn the safe use of multimeters and how to measure voltage, current and resistance.

This class is 50% Hands-On.

One work station for 2 students.  
Maximum of 10 students per class.

# Basic Electricity for Maintenance Technicians

## Course Topics and Objectives

### Introduction to Electrical Energy

- How Electricity Is Produced – Six Different Methods
- How DC and AC is used in Plants and Facilities
- 

### Voltage Systems

- Wye and Delta Systems
- 120V Single Phase
- 240V Single Phase
- 120/208V Three Phase
- 277/480V Three Phase
- 

### Use of Multimeters

- Multimeter Safety
- Multimeter Categories
- Multimeter Settings
- Voltage, Current and Resistance Measurements - Hands-On Lab Exercises

### Ohms Law

- Introduction to Ohms Law Theory
- Series Circuits - Calculating and Constructing
- Parallel Circuits - Calculating and Constructing
- Series/Parallel Circuits - Calculating and Constructing
- Measuring Voltage, Current and Resistance in Circuits - Hands-On Lab Exercises

### Field Devices

- Pushbuttons
  - Normally Open
  - Normally Closed
  - Testing - Hands-On Lab Exercise
- Limit Switches
  - Normally Open
  - Normally Closed
  - Testing - Hands-On Lab Exercise

# Basic Electricity for Maintenance Technicians

## Field Devices(Cont.)

- Float Switches
  - Normally Open
  - Normally Closed
  - Testing - Hands-On Lab Exercise
- Selector Switches
  - Normally Open
  - Normally Closed
  - Testing - Hands-On Lab Exercise
- Relays
  - Normally Open
  - Normally Closed
  - Coil
  - Testing - Hands-On Lab Exercise
- Motor Starter
  - Normally Open
  - Normally Closed
  - Overload Contact
  - Coil
  - Testing - Hands-On Lab Exercise
- Series Circuits (Lights) - Hands-On Lab Exercises
- Parallel Circuits (Control Devices and Lights ) - Hands-On Lab Exercises
- Series/Parallel Circuits (Control Devices and Lights ) - Hands-On Lab Exercises

## 2 Days of Training

# Basic Electricity for Maintenance Technicians

## Who Should Attend:

- Energy management personnel
- Apprentice and experienced HVAC technicians
- IT Technicians
- Fire Alarm Technicians
- Electricians
- Multi-craft personnel
- Plant & facility maintenance technicians
- Building engineers
- Building managers & superintendents
- Plant & facility managers
- Stationary engineers
- Anyone who needs cross-training on basic electricity and circuits.

## Onsite Training:

- We offer onsite training at your facility.
- We can provide the same courses as we offer in public seminars. We can even design courses especially to meet your needs.

## Advantages of On-Site Training:

- Modify the content to your specific needs
- Protect company privacy
- Workers remain on site in case of an emergency
- Saves time and travel costs
- Instructors can discuss your specific equipment
- Problems can be openly discussed
- Flexible scheduling
- Increased price savings as the groups get larger
- Promote teamwork & camaraderie among workers
- More comfortable learning environment