

Basic Electrical Troubleshooting

4 Days, 3.2 CEUs

Technicians who understand systematic electrical troubleshooting techniques can save their organization money by properly identifying faulty components. The ability to effectively and safely troubleshoot electrical systems is an essential skill for any technician responsible for maintenance in an industrial, commercial or utility facility. The inexperienced troubleshooter may mistake symptoms for problems – which leads to replacing the same parts over and over again.

This course emphasizes safe and systematic troubleshooting methods that will greatly enhance technician skills. Component identification, ladder diagram interpretation and correct multimeter usage are key components to this electrical maintenance course.

Who Should Attend

This hands-on course is intended for electricians, technicians and supervisors responsible for troubleshooting electrical system problems. The participant should have basic knowledge of AC/DC electricity and bring a trigonometric calculator.

Learning Objectives:

Upon completion of this course, the participant should be able to:

- Explain the hazards of electricity and need for electrical safe work practices
- Identify components and their general application: breakers, fuses, relays, transformers, coils, overloads, switches, disconnects, contacts, motors, resistors, diodes and indicator lights
- Locate faulty components using a digital multimeter
- Interpret common control circuits and basic ladder logic diagrams
- Recognize the symptoms of power quality problems

SCOPE

Day 1*

- I. **Electrical Safety**
 - A. Lockout/Tagout
 - B. Deenergized Troubleshooting
- II. **Use of Test Instruments**
 - A. Analog
 - B. Digital

Day 2

- III. **Reading and Interpreting Line Diagrams**
 - A. Wiring Diagrams
 - B. Ladder Diagrams

Day 3

- IV. **Circuit Components**
 - A. Switches
 - B. Contactors and Relays

Day 4

- V. **General Troubleshooting**
 - A. Isolating Problems from Diagrams
 - B. Troubleshooting with Test Instruments
- VI. **Specific Equipment Troubleshooting**
 - A. Motors
 - B. Starters, Contactors and Relays
- VII. **Power Quality Problems**
- VIII. **Final Test**

*Class scheduling times may vary based on discussions and size of class

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