

# Troubleshooting Of Electrical Equipment and Control Systems Course

## Venue Information

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**Venue:** London UK

**Place:**

**Start Date:** 2025-12-08

**End Date:** 2025-12-12

## Course Details

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**Net Fee:** £4750.00

**Duration:** 1 Week

**Category ID:** EAPET

**Course Code:** EAPET-63

## Syllabus

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### Course Description

Accurate troubleshooting and subsequent repair of electrical equipment is necessary in today's sophisticated industrial environments to ensure continued efficient operation and productivity of the equipment. Delegates are encouraged to raise queries both during and at any time after attending the course. Delegates are also encouraged to bring any specific issues that they may wish to raise to this course.

### Course Objectives

- To develop a structured approach to electrical troubleshooting using common terminology and to provide troubleshooting methods and solutions for various electrical equipment and control systems problems.
- To develop a better understanding of various test equipment used in electrical troubleshooting.

- To provide examples of successful troubleshooting techniques and 'hands on' experiences plus case studies and group problem solving exercises.
- To provide troubleshooting methods and solutions for various electrical equipment and control systems problems.

## **Course Outlines**

### **The Technology of Electrical Equipment**

Definitions and descriptions of electrical equipment used in industrial applications including:

#### **Source Equipment – transformers**

- power supplies (UPS)
- batteries
- generators

#### **Switching Equipment – switchgear**

- motor control centre (MCC)
- disconnects
- contactors
- overload relays
- starters
- neutral ground resistors (NGR)

#### **Control Equipment – variable frequency drives (VFD)**

- programmable logic controllers (PLC)
- distributed control systems (DCS)
- power monitoring and control
- relays and timers
- limit switches
- temperature switches
- pressure switches
- level switches
- speed switches
- vibration switches
- safety and shutdown switches
- motor/feeder protective devices

- valve actuators
- signaling and alarm devices

### **Troubleshooting Applicable to the Above List**

- methods
- terminology
- principles
- special techniques

### **Test Equipment**

- digital volt meter (DVM)
- oscilloscope or oscillograph
- megger
- hi-pot tester
- frequency meter
- ammeter (inline, clamp-on)
- power meter (watt, VAR)
- current transformer
- specialised equipment

### **Typical Problems/Failures**

- common mode failures
- phase imbalance
- contact pitting/arcing
- electronic control component failure
- blown fusing
- damaged windings
- worn bearings
- damaged brushes
- burnt ballasts
- damaged excitation circuits
- battery cell failure
- inverter/rectifier failure
- high voltage bushing failure
- switch failure

- identify troubleshooting step sequence
- prepare procedures
- documentation
- follow-up
- regulatory requirements
- training

### **Typical Electrical Drawings and Symbols**

- single line
- control wiring
- distribution
- symbols