

# High Voltage Operational Safety For Engineers and Technicians Course

## Venue Information

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**Venue:** London UK

**Place:**

**Start Date:** 2025-09-29

**End Date:** 2025-10-03

## Course Details

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**Net Fee:** £4750.00

**Duration:** 1 Week

**Category ID:** EAPET

**Course Code:** EAPET-30

## Syllabus

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### Course Description

Electrical safety plays an important role in electrical power systems in maintaining the safety to human being and equipment. Also it will maintain the continuity of power supply and power quality to the industrial and commercial consumers. A properly plan, design and operation of the electrical power system should ensure the safety and reliability of the system.

Understanding the steps and procedures employed in a good electrical safety program requires an understanding of the nature of electrical hazards. Understanding the nature of the hazards is useless unless protective strategies are developed to protect the worker. This course includes a synopsis of the types of protective strategies that should be used to protect the worker.

## **Course Objective**

- To present the recommended practices, and guides, of which NFPA 70E contained, which are developed through a consensus standards development process approved by the American National Standards Institute.
- To provide The Safety Standards.
- To provide a practical understanding of electrical power system safety.
- To declare the regulatory and legal safety requirements.
- To demonstrate the earthing systems Safety and Risk Assessment.
- To explain the relation between maintenance activities for various equipment and safety.
- To select and maintain the electrical equipment in hazardous areas and its standard.
- To indicate arc flash hazard and mitigation.
- To introduce main recommendations for electrical safety.
- To review of general work and plant safety rules.

## **Course Outline**

### **Hazards of Electricity**

- Hazard Analysis
- Shock
- Arc definition, description and characteristics
- Arc Burns
- Blast
- Affected Body Parts
- Causes Injury and Death
- Shock Effect
- Arc Flash Effect
- Protective Strategies

### **Earthing Systems Safety And Risk Assessment**

- Equipment Earthing
- Measuring earthing rods
- System Earthing (Unearthed, Solid, Resistance, Reactance)
- Classification Of Supply / Installation System Earthing
- Neutral Earthing Compensator, Distribution transformers, Zig Zag transformers
- Comparison and evaluation of methods

- History and standards (NFPA 70E, IEEE 1584)
- Flash Hazard Calculations (Lee Method, NFPA, IEEE)
- PPE requirements and selection
- Hazard assessment and mitigation strategies
- Labels, protective devices, and staged tests

### **Electrical Safety Equipment**

- Inspection and testing requirements
- Clothing, thermal protection, head/eye/hand protection
- Insulating equipment (gloves, mats, hot sticks)
- Insulated tools, barriers, locks, testers
- Low voltage standards and measuring instruments

### **Safety Grounding Equipment**

- Grounding needs, switches, jumpers
- Installation, testing, and applications

### **Ground Fault Circuit Interrupters**

- Operating principles and applications

### **Safety Procedures and Methods**

- Six-Step Safety Method
- Safe switching and remote operation
- Operating MV/LV switchgear
- Energy Control Programs
- Lockout-Tagout (rules, sequence, verification, training)

### **Voltage-Measurement Techniques**

- Purpose and instrument selection
- Three-Step Measurement Process

### **Safety Ground Placement**

- Principles, locations, application, removal, and control

## **Tools and Test Equipment**

- Inspections, tests, marking, hazardous environments

## **Safety-Related Maintenance Requirements**

- RCM and maintenance programs
- Maintenance of substations, switchgear, panel boards, fuses, rotating equipment, hazardous areas

## **Review of General Work and Plant Safety Rules**

- Substations and switchgear rooms rules
- Work on HV/LV equipment, transformers, switchgear, cables, overhead lines
- Precautions in hazardous atmospheres

## **Safety-Related Work Practices**

- General requirements, safe conditions, safeguards

## **Regulatory and Legal Safety Requirements and Standards**

- ANSI, IEEE, NFPA, OSHA, NEC, NESC, ASTM, ASSE

## **Electrical Equipment In Hazardous Areas**

- Properties of hazardous/flammable materials
- Explosion protection methods (EX p, EX d, EX i, etc.)
- Installation, inspection, maintenance
- International Standards and ATEX Directive