

ELECTRICAL EQUIPMENT AND SAFETY

“Ensure Safe Operation, Inspection, and Maintenance of Electrical Systems in Industrial Environments”

Schedule

Date	Venue	Fees (Face-to-Face)
25 – 27 Feb 2026	Dubai, UAE	USD 2495 per delegate

► Available delivery methods: Face-to-Face & Online Training

Introduction

Electrical systems are critical to industrial operations, but they also pose significant risks when improperly designed, operated, or maintained. Injuries, equipment damage, and downtime can result from electrical faults, unsafe practices, or failure to follow safety protocols.

This 3-day intensive course is designed to give engineers, technicians, and HSE professionals a clear understanding of electrical equipment operation, fault prevention, and workplace electrical safety. The course emphasizes practical approaches to identifying hazards, implementing protective measures, and complying with international standards such as NFPA 70E, IEC, and OSHA.

Objectives

By the end of this course, participants will be able to:

- Identify common electrical equipment and understand their operating principles
- Recognize key electrical hazards such as arc flash, shock, and overload
- Apply lockout/tagout (LOTO) and electrical isolation procedures correctly
- Conduct safe inspection, testing, and maintenance of electrical equipment
- Understand PPE selection and safety signage requirements
- Align with electrical safety best practices and compliance requirements

Why Attend

- Gain confidence in working around electrical equipment and systems
- Learn to reduce the risk of arc flash, electrical fires, and shock injuries
- Improve inspection, maintenance, and reporting practices
- Comply with global safety regulations and electrical codes
- Build a safety-first culture around electrical operations

Target Audience

This program is designed for:

- Electrical and maintenance engineers
- Safety, health, and environment (HSE) officers
- Plant supervisors and technical staff
- Facility managers and operations personnel
- Technicians responsible for electrical equipment testing or repairs

Individual Benefits

Key competencies that will be developed include:

- Hazard identification and control techniques
- Practical knowledge of electrical panels, breakers, cables, and switchgear
- Use of testing tools (multimeters, insulation testers, etc.)
- Understanding electrical safety labels, signs, and PPE standards
- Safe shutdown and isolation of electrical systems

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Reduced workplace incidents related to electrical faults or unsafe practices
- Greater confidence in electrical equipment operation and inspection
- Improved safety compliance with reduced insurance and liability risks
- Enhanced productivity through fewer electrical interruptions and better equipment care
- Stronger integration between maintenance and safety functions

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Technical Briefings – Equipment functions, codes, and protective systems
- Case Studies – Real incidents involving electrical failures and near-misses
- Workshops – Hazard assessment, LOTO application, and inspection walkthroughs
- Demonstrations – Use of safety tools, testers, and PPE
- Tools – Electrical risk matrix, inspection checklists, and compliance templates

Course Outline

DETAILED 3-DAY COURSE OUTLINE

Training Hours: 7:30 AM - 3:30 PM Daily Format: 3-4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 - 02:00

Day 1: Electrical Equipment Overview and Hazards

- Module 1: Introduction to Electrical Equipment and Components (07:30 - 09:30) • Switchgear, transformers, circuit breakers, relays, cables • Ratings, labels, and equipment identification
- Module 2: Understanding Electrical Hazards (09:45 - 11:15) • Electric shock, arc flash, arc blast, fire, and burns • Hazard categories and energy exposure
- Module 3: Industry Standards and Codes (11:30 - 01:00) • NFPA 70E, IEC 60364, OSHA 1910 Subpart S overview • Safety zones, boundaries, and signage
- Module 4: Workshop - Hazard Identification & Risk Mapping (02:00 - 03:30) • Participants assess sample electrical installations for hazards

Day 2: Safe Work Practices and Equipment Testing

- Module 1: Lockout/Tagout and Electrical Isolation (07:30 - 09:30) • Steps of LOTO procedures • Authorized personnel and energy control devices
- Module 2: Personal Protective Equipment (PPE) for Electrical Safety (09:45 - 11:15) • Arc-rated clothing, gloves, face shields, and dielectric tools • Selection by arc flash category and voltage level
- Module 3: Testing and Inspection Tools (11:30 - 01:00) • Use of multimeters, IR thermography, and insulation testers • Pre-use inspection checklists
- Module 4: Workshop - LOTO Demonstration & Test Tool Practice (02:00 - 03:30) • Hands-on simulation of LOTO and basic testing

Day 3: Incident Prevention, Maintenance & Compliance

- Module 1: Preventive Maintenance and Fault Detection (07:30 - 09:30) • Early signs of failure (overheating, arcing, insulation wear) • Routine and predictive maintenance strategies
- Module 2: Incident Response and Investigation (09:45 - 11:15) • Immediate actions during electrical emergencies • Root cause analysis and lessons learned
- Module 3: Documentation and Safety Audits (11:30 - 01:00) • Maintenance records, LOTO logs, and compliance reports • Conducting internal safety walkthroughs
- Module 4: Final Exercise & Certification Wrap-Up (02:00 - 03:30) • Team presentations on electrical safety improvement plans

Certification

Participants will receive a Certificate of Completion in Electrical Equipment and Safety, confirming their knowledge and practical readiness to handle electrical systems safely and compliantly in operational settings.

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