

## ELECTRICAL PROTECTION SYSTEMS

*"Protecting Electrical Networks through Reliable and Coordinated Protection Schemes"*

### Schedule

Date	Venue	Fees (Face-to-Face)
27 - 28 Jul 2026	Doha - Qatar	USD 1995 per delegate

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

### Introduction

Electrical protection systems are essential for ensuring the safety, reliability, and continuity of power systems. Proper protection design minimizes damage to equipment, prevents hazards to personnel, and ensures fast isolation of faults. With increasing system complexity, engineers must understand modern protection schemes and coordination techniques.

This intensive 2-day course provides a practical understanding of electrical protection principles, protection devices, and system coordination. Participants will gain the knowledge required to design, select, and maintain protection systems for industrial and commercial electrical installations.

### Objectives

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

- Understand fundamental principles of electrical protection
- Identify different types of electrical faults and their effects
- Select appropriate protection devices and schemes
- Apply protection coordination and selectivity concepts
- Understand relay protection and settings
- Improve system safety and reliability

## Why Attend

- Gain practical knowledge of electrical protection systems
- Learn best practices for fault detection and isolation
- Improve safety and reliability of electrical installations
- Enhance troubleshooting and protection coordination skills
- Strengthen compliance with electrical standards and codes

## Target Audience

This program is designed for:

- Electrical engineers and technicians
- Power system and maintenance engineers
- Electrical supervisors and foremen
- Facility and plant engineers
- Professionals involved in electrical design, operation, and maintenance

## Individual Benefits

Key competencies that will be developed include:

- Strong understanding of electrical protection principles
- Ability to analyze faults and protection requirements
- Improved skills in protection coordination and settings
- Enhanced safety awareness in electrical systems
- Practical knowledge of protection devices and relays

## Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved safety and reliability of electrical systems
- Reduced equipment damage and downtime
- Enhanced compliance with electrical standards
- Better fault response and system continuity
- Improved maintenance and operational efficiency

## Instructional Methodology

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

- Strategy Briefings - Electrical protection concepts, standards, and principles
- Case Studies - Real-world electrical fault scenarios and protection failures
- Workshops - Protection coordination and fault analysis exercises
- Peer Exchange - Group discussions on protection challenges
- Tools - Protection curves, relay settings examples, and coordination charts

## Course Outline

Detailed 2-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: Fundamentals of Electrical Protection

Module 1: Introduction to Electrical Protection Systems (07:30 – 09:30)

- Purpose and objectives of electrical protection
- Types of electrical faults (short circuit, earth fault, overload)
- Effects of faults on electrical systems

Module 2: Protection Devices and Equipment (09:45 – 11:15)

- Fuses, circuit breakers, and protective relays
- Characteristics and applications
- Selection criteria

Module 3: Protection Schemes and Coordination (11:30 – 01:00)

- Overcurrent, earth fault, and differential protection
- Selectivity, sensitivity, and reliability
- Coordination of protection devices

Module 4: Practical Protection Analysis (02:00 – 03:30)

- Time-current characteristic curves
- Coordination studies basics
- Common protection mistakes and solutions

Day 2: Advanced Protection Applications and Maintenance

Module 5: Relay Protection Systems (07:30 – 09:30)

- Electromechanical, static, and numerical relays
- Relay functions and settings
- Protection for feeders, transformers, and motors

Module 6: Protection for Industrial and Commercial Systems (09:45 – 11:15)

- Protection of generators and motors
- Busbar and transformer protection
- Grounding and earthing considerations

Module 7: Testing, Maintenance, and Troubleshooting (11:30 – 01:00)

- Protection system testing methods
- Maintenance practices and documentation
- Fault analysis and troubleshooting techniques

Module 8: Standards, Safety, and Best Practices (02:00 – 03:30)

- IEC, IEEE, and local standards overview
- Electrical safety requirements
- Best practices for reliable protection systems

## Certification

Participants will receive a Certificate of Completion in Electrical Protection Systems, validating their competence in electrical fault protection, device coordination, relay applications, and system safety.

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