ELECTRICAL INSTALLATIONS & UTILITIES



EPE150

COURSE TITLE ELECTRICAL INSTALLATIONS & UTILITIES COURSE DATE/ VENUE 08th - 12th Sep, 2025 Italy, Milan COURSE REFERENCE EPE150 COURSE DURATION 05 Days

DISCIPLINE

Electrical & Power Engineering

COURSE INTRODUCTION

Welcome to **Electrical Installations & Utilities**, a comprehensive course designed to equip you with the essential knowledge and practical skills needed to design, install, and maintain safe, efficient, and reliable electrical systems.

In today's rapidly advancing world, the demand for well-designed electrical infrastructure is critical across residential, commercial, and industrial sectors. From the supply of power at the utility level to distribution inside buildings and facilities, a deep understanding of installations, standards, and operational practices is vital for success and safety.

COURSE OBJECTIVE

Upon successful completion of this course, the delegates will be able to:

- ✓ Understand and apply international electrical standards and codes
- ✓ Design and implement robust electrical installation systems
- ✓ Select and integrate key components such as transformers, switchboards, protective devices, and wiring
- ✓ Troubleshoot faults and maintain electrical utilities for long-term reliability
- ✓ Apply best practices for energy efficiency, quality assurance, and sustainable power management

COURSE AUDIENCE

- ✓ Electrical Engineers involved in the design, installation, or maintenance of electrical systems
- Project Engineers and Managers responsible for overseeing construction or industrial projects with electrical infrastructure
- ✓ Maintenance Engineers and Technicians working with building services, factories, utilities, or plant operations

COURSE CONTENT

Day 1: Fundamentals of Electrical Installations

Theme: Core Principles and Standards

- Overview of Electrical Installation Systems
- Basic Electrical Concepts (Voltage, Current, Power, Energy)
- Types of Electrical Installations (Residential, Commercial, Industrial)
- International Standards and Codes (IEC, NEC, IEEE)
- Safety Considerations and PPE for Electrical Work

Activity: Group exercise — Identify potential hazards in a sample electrical layout.

Day 2: Components of Electrical Installations

Theme: Building the System

- Power Sources: Utility Connections, Generators, Renewable Inputs
- Distribution Systems: Switchboards, Panels, Busbars
- Protective Devices: Fuses, Circuit Breakers, Relays
- Cables and Wiring Systems: Selection, Sizing, Installation
- Earthing (Grounding) and Bonding Fundamentals

Session: Design a basic power distribution layout for a small commercial building.

Day 3: Electrical Utilities and Infrastructure

Theme: Delivering Reliable Power

- Understanding Electrical Utilities and Grid Systems
- Substations: Components and Functions

- Transformers: Types, Ratings, and Selection
- Emergency Power Systems: UPS and Backup Generators
- Smart Grids and Emerging Technologies

Day 4: Installation Practices and Quality Assurance

Theme: From Plans to Execution

- Installation Best Practices: Conduits, Cable Trays, Trenching
- Inspection, Testing, and Commissioning Procedures
- Power Quality Issues: Harmonics, Transients, Voltage Sags
- Load Calculations and Energy Efficiency
- Documentation: As-Built Drawings, Single Line Diagrams (SLDs)

Day 5: Operation, Maintenance, and Sustainability

Theme: Keeping Systems Running

- Preventive and Predictive Maintenance Techniques
- Fault Diagnosis and Troubleshooting Strategies
- Energy Management and Monitoring Systems
- Life Cycle Considerations for Electrical Installations
- Sustainable Design Approaches for Electrical Utilities

COURSE CERTIFICATE

TRAINIT ACADEMY will award an internationally recognized certificate(s) for each delegate on completion of training.

COURSE FEES

£5,500 per Delegate. This rate includes participant's manual, Hand-Outs, lunch, coffee/tea on arrival, morning & afternoon of each day.

COURSE METHODOLOGY

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions

