

Power Distribution

Barcelona (Spain)

24 - 28 November 2025

UK Training

PARTNER



Power Distribution

Code: OG28 From: 24 - 28 November 2025 City: Barcelona (Spain) Fees: 5100 Pound

Introduction

Power distribution is a critical part of the electrical supply chain, ensuring that electricity is delivered safely and reliably from generation facilities to end-users. This course covers the essential principles, components, and operations of power distribution systems. Participants will delve into various distribution network designs, the equipment involved, maintenance practices, and fault management strategies. Through practical exercises and real-world examples, this training will equip participants with the skills necessary to optimize power distribution systems for enhanced efficiency and reliability.

Course Objectives

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

- Understand the key principles and components of power distribution systems.
- Learn about different distribution network types and their configurations.
- Develop practical skills for managing, operating, and maintaining distribution equipment.
- Identify and address power quality issues and fault management techniques.
- Improve system reliability through proper planning, operation, and optimization.

Course Outlines

Day 1: Introduction to Power Distribution Systems

- Overview of the electrical power system generation, transmission, and distribution.
- The importance of power distribution within the energy supply chain.
- Types of distribution networks radial, loop, and networked systems.
- Key components of distribution systems substations, transformers, and cables.
- Understanding voltage levels and distribution standards.

Day 2: Distribution System Design and Configuration

- Core principles of designing distribution networks.
- Load estimation and planning for power distribution.
- Selection of distribution equipment and materials.
- Introduction to distribution automation and smart grids.
- Case study: Designing a small-scale distribution network.

Day 3: Operation and Maintenance of Distribution Systems

- Best practices for operating distribution networks efficiently.



- Preventive and corrective maintenance techniques.
- Inspection and testing of distribution equipment.
- Safety considerations when working with power distribution systems.
- Workshop: Developing a maintenance schedule for a distribution network.

Day 4: Fault Management and Power Quality

- Identifying and diagnosing faults within distribution systems.
- Protective devices and their coordination fuses, circuit breakers, relays.
- Techniques for improving power quality harmonics, voltage dips, flicker.
- Strategies for fault location and restoration.
- Group activity: Creating a fault response plan.

Day 5: Future Trends and Optimization in Power Distribution

- Improving energy efficiency in distribution systems.
- The role of renewable energy and distributed generation in power distribution.
- Integrating electric vehicles and energy storage systems into the grid.
- Emerging technologies in power distribution IoT, AI, and big data.
- Final project: Proposing improvements to an existing power distribution network.



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