BLACKBIRD FOR TRAINING

Power Distribution

23 – 27 November 2026
Barcelona (Spain)

UK Traininig
PARTNER



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Introduction

Power distribution plays a crucial role in the electrical supply chain, ensuring that electricity is safely and efficiently delivered from generation facilities to end-users. This course provides a comprehensive understanding of power distribution systems, covering their design, operation, maintenance, and optimization. Participants will explore different power distribution network types, essential components such as power distribution panels and distribution centers, and best practices in fault management and power distribution maintenance.

By the end of this training, participants will have acquired the knowledge and hands-on skills required to define power distribution, optimize electric power distribution systems, and enhance system reliability using modern technologies.

Course Objectives

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

- Define power distribution and its role in the electrical infrastructure.
- Identify different power distribution system configurations and their applications.
- Develop practical skills for operating and maintaining power distribution equipment.
- Understand fault detection and troubleshooting techniques in power distribution services.
- Improve system efficiency and reliability using advanced power distribution panels and emerging technologies.



Course Outlines

Day 1: Introduction to Power Distribution Systems

- What is electric power distribution? Understanding its importance in the energy supply chain.
- Electric power distribution system components: Substations, transformers, circuit breakers, and cables.
- Types of power distribution networks: Radial, loop, and networked configurations.
- Power distribution centers and their role in energy management.
- Voltage levels and standards in power distribution.

Day 2: Distribution System Design and Configuration

- Core principles of designing power distribution systems.
- Load estimation and demand planning for efficient distributed power management.
- Selection of power distribution panels and materials.
- Introduction to smart grids and automation in power distribution.
- Case study: Designing a small-scale power distribution system.



Day 3: Operation and Maintenance of Power Distribution Systems

- Best practices for operating power distribution systems.
- Preventive and corrective power distribution maintenance.
- Inspection and testing of power distribution panels and equipment.
- Safety procedures in working with power distribution networks.
- Workshop: Developing a maintenance plan for a power distribution network.

Day 4: Fault Management and Power Quality

- Identifying and diagnosing faults in power distribution systems.
- Protective devices in power distribution: Circuit breakers, fuses, and relays.
- Techniques for improving power quality: Managing harmonics, voltage sags, and flicker.
- Dynamic power distribution: Strategies for balancing loads and improving efficiency.
- Group activity: Developing a fault response and restoration plan.

Day 5: Future Trends and Optimization in Power Distribution

- Improving energy efficiency in power distribution networks.
- The role of renewable energy and distributed power management in modern grids.
- Integration of electric vehicles and energy storage systems into power distribution.
- Emerging technologies in power distribution: IoT, AI, and big data analytics.
- Final project: Proposing improvements to an existing power distribution system.



Why Attend this Course: Wins & Losses!

- Gain professional expertise in power distribution systems and their operations.
- Develop specialized knowledge as a power distribution technician or specialist.
- Learn to manage and maintain advanced power distribution panels.
- Enhance troubleshooting skills for faults and inefficiencies in power networks.
- Master strategies for dynamic power distribution and system optimization.

Conclusion

Mastering power distribution systems is essential for ensuring efficient, reliable, and sustainable electrical networks. This course provides a deep dive into power distribution principles, system design, fault management, and modern optimization strategies.

By understanding what is electric power distribution, how to manage power distribution panels, and the importance of advanced power distribution centers, participants will be prepared to enhance power distribution services in their organizations. Join now to become a power distribution professional and optimize electrical systems for the future!

