



*Training Course:
Design of Distribution Networks and Load
Growth Estimation*

19 - 30 October 2025

Cairo (Egypt)

Holiday Inn & Suites Cairo Maadi, an IHG Hotel

Training Course: Design of Distribution Networks and Load Growth Estimation

Training Course code: EN235694 From: 19 - 30 October 2025 Venue: Cairo (Egypt) - Holiday Inn & Suites Cairo Maadi, an IHG Hotel Training Course Fees: 6600 € Euro

Introduction

This training program equips participants with the knowledge and tools to design efficient distribution networks and accurately estimate load growth. By integrating technical principles, regulatory standards, and modern techniques, participants will develop solutions that ensure reliability, cost-efficiency, and scalability in power distribution systems.

Objectives

- Understand the principles and components of distribution network design.
- Analyze current and future load requirements for effective planning.
- Apply advanced tools and methodologies for load growth estimation.
- Develop scalable and sustainable distribution network designs.
- Ensure compliance with industry standards and regulations.

Target Audience

- Electrical engineers and planners.
- Utility and power distribution professionals.
- Technical consultants in energy and infrastructure.
- Project managers in distribution network development.

Outlines

Day 1: Fundamentals of Distribution Networks

- Overview of distribution systems and configurations.
- Key components: feeders, substations, transformers.
- Role of distribution networks in the power grid.

Day 2: Electrical Design Principles

- Voltage regulation and power quality considerations.
- Selection of conductors, transformers, and protective devices.
- Balancing reliability, efficiency, and cost.

Day 3: Load Analysis and Demand Estimation

- Principles of load analysis.
- Types of loads: residential, commercial, and industrial.
- Tools and software for demand estimation.

Day 4: Load Growth Factors and Forecasting

- Economic, demographic, and environmental factors influencing load growth.
- Techniques for load forecasting e.g., historical trend analysis, regression models.
- Case studies in load growth estimation.

Day 5: Network Expansion Planning

- Strategies for accommodating future load growth.
- Design considerations for scalability and flexibility.
- Financial and environmental impact assessments.

Day 6: Design Optimization and Tools

- Tools for designing distribution networks e.g., CAD, GIS-based systems.
- Optimization techniques for loss reduction and capacity planning.
- Hands-on session: Basic network design using simulation software.

Day 7: Smart Grid Integration

- Incorporating smart technologies in distribution networks.
- Role of distributed generation e.g., solar, wind and storage systems.
- Impact of smart meters and IoT on network planning.

Day 8: Regulatory Standards and Compliance

- International and local standards for distribution networks.
- Ensuring compliance in network design and expansion.
- Case studies on regulatory impacts.

Day 9: Practical Challenges in Distribution Network Design

- Addressing rural vs. urban distribution network challenges.
- Solutions for high-load and high-demand scenarios.
- Managing environmental and geographical constraints.

Day 10: Project Development and Real-World Applications

- Hands-on group project: Design a distribution network with future load growth considerations.
- Presentation of project outcomes and peer feedback.
- Lessons learned and action plans for professional application.

Registration form on the Training Course: Design of Distribution Networks and Load Growth Estimation

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