€TRAINING

Advanced Power Quality Management and Optimization

8 - 12 June 2025
Cairo (Egypt)

Advanced Power Quality Management and Optimization

REF: O2425 DATE: 8 - 12 June 2025 Venue: Cairo (Egypt) - Fee: 4465 Euro

Introduction:

This training program offers participants comprehensive insights and techniques to ensure stable and efficient power distribution systems. It delves into the complexities of power quality, harmonics, and reactive power management, equipping professionals with the knowledge and skills to address challenges and optimize electrical systems' performance.

Program Objectives:

At the end of this program, participants will be able to:

- Understand the fundamentals of power quality and its impact on electrical systems.
- Identify sources of harmonics and implement mitigation strategies.
- Manage reactive power effectively to improve system efficiency.
- Implement corrective measures to address power quality issues.
- Optimize power distribution systems for reliability and performance.

Targeted Audience:

- Electrical Engineers.
- Power Systems Engineers.
- Facility Managers.
- Maintenance Personnel.
- Energy Management Professionals.
- Electrical Contractors.

Program Outline:

Unit 1:

Fundamentals of Power Quality:

- Introduction to power quality parameters.

- Effects of poor power quality on electrical systems.
- Standards and regulations related to power quality.
- Measurement and monitoring techniques.
- Case studies on power quality incidents.

Unit 2:

Harmonics Mitigation Techniques:

- Understanding harmonics and their sources.
- Impact of harmonics on electrical equipment.
- Passive and active harmonics mitigation techniques.
- Filter design and introduction for the implementation steps.
- Real-world examples of successful harmonics mitigation.

Unit 3:

Reactive Power Management:

- Role of reactive power in electrical systems.
- Reactive power generation and absorption.
- Capacitor banks and synchronous condensers.
- Power factor correction techniques.
- Case studies on reactive power management strategies.

Unit 4:

Corrective Measures for Power Quality Issues:

- Diagnosing power quality problems.
- Corrective measures for voltage sags, swells, and interruptions.
- Transient voltage suppression techniques.
- Voltage regulation and stabilization methods.
- Case studies on resolving power quality issues.

Unit 5:

Optimization of Power Distribution Systems:

- Strategies for optimizing power distribution networks.
- Load balancing and distribution.
- Voltage regulation and control.
- Smart grid technologies for power optimization.
- Best practices for enhancing system reliability.