



SCANDINAVIAN ACADEMY
Training and Development

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Course: Reactive Power Management and Power Factor Correction

Code	City	Hotel	Start	End	Price	Language - Hours
EE-640	Baku (Azerbaijan)	Hotel Meeting	2026-10-26	2026-10-30	5450 €	En - 25

Course Introduction:

Reactive power management and power factor correction are critical aspects of electrical power systems that enhance efficiency, reduce losses, and optimize energy consumption. Proper control of reactive power ensures voltage stability, minimizes transmission losses, and improves overall system reliability. This training program equips participants with the knowledge and skills to analyze, manage, and optimize reactive power and power factor correction strategies in industrial and utility-scale electrical networks.

Through theoretical instruction, hands-on exercises, and real-world case studies, attendees will develop expertise in the design, operation, and maintenance of power factor correction systems and reactive power compensation solutions.

Course Objectives:

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

- Understand the principles of reactive power and its impact on power systems.
- Implement power factor correction techniques to enhance energy efficiency.
- Design and size capacitor banks and other reactive power compensation devices.
- Analyze power quality issues related to reactive power and harmonics.
- Optimize industrial and utility power factor correction strategies.
- Ensure compliance with energy regulations and power quality standards.



- Integration of power factor correction with energy management systems
- Impact of distributed generation on reactive power compensation
- Workshop: Practical design and implementation of power factor correction

Power Quality, Harmonics, and System Performance

- Power quality parameters affected by reactive power
- Harmonic generation and mitigation techniques
- Effects of non-linear loads on power factor correction
- Filtering solutions for harmonic suppression
- Power factor correction in renewable energy systems
- Case study: Power factor correction in industrial and commercial facilities

Monitoring, Control, and Compliance in Reactive Power Management

- Real-time monitoring and SCADA integration
- Smart grid technologies for reactive power management
- Economic and operational benefits of optimized power factor
- Compliance with IEC, IEEE, and national power quality standards
- Advanced control techniques using AI and automation

