SCANDINAVIAN ACADEMY

Training and Development

Mobile : +46700414979 | Mobile : +46700414979 | phone : +46114759991
Email : info.en@scandinavianacademy.net | Web site : https://scandinavianacademy.net/en
location : Sweden - Norrköping - Timmermansgatan100 | P.O.BOX : 60359

Course: Protection of Electrical Power Systems

Code	City	Hotel	Start	End	Price	Language - Hours
639	Frankfurt (Germany)	Hotel Meeting	2025-05-26	2025-05-30	5950 €	En - 25

Course Introduction:

The protection of electrical power systems is critical to ensuring the reliability, safety, and stability of modern energy networks. Effective protection schemes help prevent equipment damage, reduce power outages, and improve system efficiency. This training program provides participants with a deep understanding of power system protection principles, fault analysis, relay coordination, and modern protection technologies.

Through expert-led discussions, hands-on exercises, and case studies, participants will develop the skills needed to implement and maintain advanced protection systems in transmission, distribution, and industrial power networks.

Course Objectives:

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

- Understand the fundamentals of electrical power system protection.
- Identify different types of faults and disturbances in power networks.
- Design and implement protective relaying schemes.
- Analyze power system faults and apply relay coordination techniques.
- Optimize protection settings for transformers, generators, and transmission lines.
- Utilize digital protection technologies and communication-based schemes.
- Ensure compliance with industry standards and best practices in power system protection.

Target Audience:

- Electrical Engineers and Technicians
- Power System Protection Engineers
- Substation and Grid Maintenance Personnel
- Relay and Control Engineers
- Utility Operators and Energy Professionals
- Industrial Power System Specialists

Course Content:

Fundamentals of Power System Protection

- Importance of protection systems in electrical networks
- Key principles of protective relaying
- Protection zones and system coordination

Fault Analysis and Types of Faults

- Short circuits, ground faults, and transient faults
- Symmetrical and asymmetrical fault analysis
- Fault detection methods and system response

Protection Relays and Coordination

- Types of relays: electromagnetic, static, and digital relays
- Relay coordination principles and time grading
- Setting and testing protection relays

Protection of Transmission and Distribution Systems

- Distance protection and directional relays
- Overcurrent and differential protection schemes
- Load shedding and islanding protection strategies

Generator and Transformer Protection

- Protection of synchronous generators and excitation systems
- Transformer differential and overcurrent protection
- Case studies on generator and transformer failures

Modern Protection Technologies

- Digital relays and microprocessor-based protection
- SCADA and communication-based protection schemes
- Smart grid protection and cybersecurity challenges

Testing, Maintenance, and Compliance

- Protection system testing methodologies
- Preventive maintenance for protection devices
- Industry standards (IEC, IEEE, NERC) and regulatory compliance

The Scandinavian Academy for Training and Development adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant receives the training material (both theoretical and practical) in printed form and saved on a CD or flash drive. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training and Development.

Program Timings:

- 9:00 AM to 2:00 PM in Arab cities.
- 10:00 AM to 3:00 PM in European and Asian cities.

The program includes:

- A daily buffet provided during the sessions to ensure participants comfort.