



**Maintenance Planning, Process  
Engineering & Instrumentation**



**SCANDINAVIAN ACADEMY**  
For Training and Development

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# Course: Medium Voltage & High Voltage Switchgear Operations & Maintenance

Code	City	hotel	Start	End	price	Hours
424	Hamburg (Germany)	Hotel Meeting Room	2024-06-17	2024-06-21	5450 €	25

## introduction

Medium voltage and high voltage switchgear are critical components in electrical power systems, used to control, protect, and isolate electrical equipment. Proper operations and maintenance of this equipment is essential to ensure the safety and reliability of power systems. This comprehensive course is designed to provide participants with a deep understanding of medium voltage and high voltage switchgear, and the knowledge and skills required for effective operations and maintenance. The course covers a wide range of topics, including switchgear components, operating procedures, maintenance practices, troubleshooting and fault finding, protection systems, testing and commissioning, and best practices for avoiding switchgear failures. The course is designed for engineers, technicians, and other professionals involved in the design, installation, maintenance, and operation of medium voltage and high voltage switchgear. Participants will gain practical knowledge and skills that can be applied in a variety of settings, from industrial plants to utility-scale power systems. Through a combination of lectures, case studies, and hands-on exercises, participants will gain a comprehensive understanding of switchgear operations and maintenance, and the skills needed to ensure the safety and reliability of power systems.

## Course Objectives

- Gain a deep understanding of medium voltage and high voltage switchgear, including its components, operating principles, and applications.
- Learn best practices for switchgear operations and maintenance, including procedures for troubleshooting, fault finding, and preventive maintenance.
- Understand the importance of safety in switchgear operations and maintenance and gain practical knowledge and skills for ensuring safe and reliable operations.
- Gain practical experience in testing and commissioning of switchgear, including procedures for documentation and reporting.
- Learn from real-world examples of switchgear failures and best practices for avoiding failures in the future.
- Understand the latest trends and technologies in switchgear operations and maintenance, and their implications for power systems.
- Develop practical knowledge and skills that can be applied in a variety of settings, from industrial plants to utility-scale power systems.

## Course outline



- **Module 1: Introduction to Medium Voltage & High Voltage Switchgear**
  - Overview of switchgear and its applications
  - Switchgear components and functions
  - Types of switchgear and their applications
  - Safety considerations for switchgear operations and maintenance
- **Module 2: Medium Voltage Switchgear Operations & Maintenance**
  - Overview of medium voltage switchgear
  - Medium voltage switchgear components and functions
  - Operating and maintenance procedures for medium voltage switchgear
  - Troubleshooting and fault finding in medium voltage switchgear
- **Module 3: High Voltage Switchgear Operations & Maintenance**
  - Overview of high voltage switchgear
  - High voltage switchgear components and functions
  - Operating and maintenance procedures for high voltage switchgear
  - Troubleshooting and fault finding in high voltage switchgear
- **Module 4: Circuit Breakers**
  - Types of circuit breakers and their applications
  - Operating principles of circuit breakers
  - Maintenance procedures for circuit breakers
  - Troubleshooting and fault finding in circuit breakers
- **Module 5: Transformers**
  - Types of transformers and their applications
  - Operating principles of transformers
  - Maintenance procedures for transformers
  - Troubleshooting and fault finding in transformers
- **Module 6: Protection Systems**
  - Overview of protection systems
  - Types of protection systems and their applications
  - Operating principles of protection systems
  - Maintenance procedures for protection systems
  - Troubleshooting and fault finding in protection systems
- **Module 7: Testing & Commissioning**
  - Overview of testing and commissioning
  - Testing procedures for switchgear, circuit breakers, transformers, and protection systems
  - Commissioning procedures for switchgear and associated equipment
  - Documentation and reporting requirements for testing and commissioning
- **Module 8: Case Studies & Best Practices**
  - Real-world examples of switchgear operations and maintenance best practices
  - Lessons learned from switchgear failures.
  - Best practices for avoiding switchgear failures.
  - Future trends in switchgear technology and maintenance



**The Scandinavian Academy employs modern methods in training and skills development, enhancing the efficiency of human resource development. We follow these practices:**

- **Theoretical Lectures:**
  - We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.
- **Scientific Assessment:**
  - We evaluate trainees skills before and after the course to ensure their progress.
- **Brainstorming and Interaction:**
  - We encourage active participation through brainstorming sessions and applying concepts through role play.
- **Practical Cases:**
  - We provide practical cases that align with the scientific content and the participants specific needs.
- **Examinations:**
  - Tests are conducted at the end of the program to assess knowledge retention.
- **Educational Materials:**
  - We provide both printed and digital scientific and practical materials to participants.
- **Attendance and Final Result Reports:**
  - We prepare detailed attendance reports for participants and offer a comprehensive program evaluation.
- **Professionals and Experts:**
  - The programs scientific content is prepared by the best professors and trainers in various fields.
- **Professional Completion Certificate:**
  - Participants receive a professional completion certificate issued by the Scandinavian Academy for Training and Development in the Kingdom of Sweden, with the option for international authentication.
- **Program Timings:**
  - Training programs are held from 10:00 AM to 2:00 PM and include buffet sessions for light meals during lectures.