

Scandinavian Academy
Training Center

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Riyadh - Al Khaleej District - Sheikh Abdul Aziz Bin Abdul Rahman Bin Bishr Street - 13223 - Office No. 5 | P.O.BOX : 13224

Course: Safe Operation & Maintenance of Circuit Breakers and Switchgears

Code	City	hotel	Start	End	price	Language - Hours
EE-581SA	Al Baha	Hotel Meeting	2027-02-07	2027-02-11	13950 SR	En - 25

Why Choose this Course?

This course will provide delegates a solid understanding on the safe use of circuit breakers, switchgears and associated equipment that requires correct initial selection, operation and maintenance. Strong emphasis on detailed understanding of how these devices should be installed, the local substation and system ratings, and how the various breakers operate; in order to enable accurate troubleshooting and subsequent repair.

On completion, delegates will be equipped or will have enhanced skills to ensure that circuit breakers and switchgear are installed, operated safely and maintained in a fashion that ensures safe and stable operation. Delegates will be exposed to recognize faults and ensure the underlying causes are identified to reduce possible further failures.

This course will feature:

- Understanding the types and functions of circuit breakers
- Operation principle of medium voltage circuit breakers
- Identification of testing equipment and instruments
- Interpretation of single line drawings
- Troubleshooting and maintenance of switchgears

What are the Goals?

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

- Understand the various types and operations of circuit breakers
- Determine the components and operations switchgears
- Explain the different types of testing instruments
- Analyse the common faults in an electrical installation
- Inculcate greater confidence, working safely on circuit breakers and switchgears

Who is this Course for?

This course will benefit all levels of professional in an electrical installation. It will enable them to understand the importance of safe operations of circuit breakers and switchgears

This course is suitable to a wide range of technical professionals but will greatly benefit:

- Electricians
- Electrical supervisors
- Plant electricians
- Operations & maintenance engineers, supervisors & technicians
- Maintenance technicians

How will this be Presented?

This course will utilise a variety of proven adult training techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes presentation and discussion of latest videos and circuit breaker technologies.

Questions are encouraged throughout, particularly at the daily wrap up sessions. This provides opportunities for participants to discuss with the Presenter specific issues and, if possible, find appropriate solutions. Specific goals of each participant will be

discussed to ensure that their needs are fulfilled whenever practicable.

The Course Content

Day One

The Technology of Circuit Breakers and Switchgear

- Typical substation arrangements and motor control centres
- Motor and generator fault contributions
- Low, medium and high voltage equipment in an electrical installation
- Name plate ratings – interpretation
- CT’s and VT’s operation, construction and classifications
- Basic protection requirements

Day Two

Operation of various types of interrupting equipment

- High voltage fuses and fused switches
- Moulded case circuit breakers
- Air and load break switches operation and construction
- Vacuum contactors applications
- Vacuum circuit breakers operations and characteristics
- SF6 circuit breakers types and operation principles

Day Three

The use of test equipment for operations and maintenance

- Digital voltmeter (DVM), oscilloscope, insulation tester applications

- Temperature probes/ IR pyrometers
- Cable fault locators and techniques
- NEC check lists to ensure the correct installation
- Troubleshooting methodology for electrical equipment
- Group exercises and case studies

Day Four

The interpretation and use of drawings and job plan

- Single-line electrical drawings control schematics
- Switchgear name plate information
- Logic and standard symbols
- Procedure preparation for fault finding
- Documentation and follow up safety procedures for switchgears
- Safety considerations and training

Day Five

The identification and repair of problems/failures

- Common mode failures in switchgears
- Phase imbalance and phase sequence effects
- Ground faults – cable and busbar faults
- A review of Safety Requirements
- Hazardous area classifications
- NEC electrical codes applications

The Scandinavian Academy for Training Center 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 Center.

Program Timings: 9:00 AM to 2:00 PM

The program includes:

- A daily buffet provided during the sessions to ensure participants comfort.
- A closing ceremony on the final day to distribute certificates and celebrate participants achievements.
- **Note: All prices are exclusive of 15% Value Added Tax (VAT).**

Our Success Partners

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