

Course Name: Safe Operations & Maintenance of Circuit Breakers & Switchgears

Reference Code: ELEC 105

About the course:

This training course will feature:

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

Course Objective:

By the end of this training 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 Should attend?.

This training 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

Kingdom of Saudi Arabia

101 Business Tower, 8th Floor
Al Jubail 35513, Bldg# 9278 ,KSA
Tel.: +966 13 361 5552

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Khobar Gate Tower
King Fahad Street , Khobar 31952
Tel.: 00966133308334

Course Methodology:

This training course is designed to be a hands-on, stimulating experience. The training course is highly interactive with many discussion and practice sessions.

- ☑ Relevant computer simulations and videos .
- ☑ Copies of all presentation material.
- ☑ Variety of Learning Methods.
- ☑ Pre-test and final test.
- ☑ Case Study
- ☑ Training Groups.
- ☑ Presentation.
- ☑ Lectures

Course Outline:

Day One: The Technology of Circuit Breakers and Switchgear

- Typical substation arrangements with circuit breaker arrangements
- Low and medium voltage motors operations and characteristics
- Motor starting methods and motor control centres
- Nameplate ratings and interpretation
- Motor and generator fault contributions
- Low, medium and high voltage equipment in an electrical installation

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Day Two: Operation of Various Types of Interrupting Equipment

- CT's and VT's operation, construction and classifications
- Basic protection requirements and LSIG
- Molded Case circuit breakers
- Air and load break switches, reclosers operation and construction
- Vacuum contactors applications
- Vacuum circuit breakers operations and characteristics

Day Three: Maintenance of Gas Filled Circuit Breakers

- Conventional Sulphur hexafluoride (SF6) gas circuit breaker construction and operation
- New green grid gas for electrical switchgears
- SF6 gas leak detection methods
- Dew point and purity tests
- IAC and partition classes
- Vacuum interrupter and SF6 circuit breakers

Day Four: The Use of Test Equipment for Operations and Maintenance

- Digital voltmeter (DVM), oscilloscope, insulation tester applications
- State of the art circuit breaker tester
- Motor diagnostics instrument
- Circuit breaker routine tests
- NEC check lists to ensure the correct installation
- Troubleshooting methodology for electrical equipment

Day Five: The Identification and Repair of Problems/Failures

- Common electrical installation faults
- Harmonics and its effects
- Phase imbalance and phase sequence effects
- Procedures for fault finding
- Discussion on common faults and incidents
- Wrap up session

Time: 08:00 AM -03:00 PM Numbers of hours: 35 Hours

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