

ELECTRICAL SWITCHGEAR FOR ENGINEERS

ELC022

COURSE DESCRIPTION

This scope includes material that enables attendees to have in-depth understanding of theory of operation of electrical switchgear and essential issues relevant to daily operation and maintenance of motor control centers and low-voltage, medium-voltage and high-voltage switchgear.

COURSE GOAL

To enhance the participants' knowledge, skills and abilities necessary to understand how to operate electrical switchgear and how to deal with essential issues relevant to daily operation and maintenance.

COURSE OBJECTIVES

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

- Be familiar with electrical switchgear:
- Understand switchgear earthing system
- Specify the differences between medium voltage circuit breakers, fused contactors and load break switch
- Protect and control switchgear
- Specify switchgear metering specifications and requirements
- Determine current transformers types and specify its accuracy
- Determine potential transformers types and its requirements
- Properly perform factory acceptance tests (FAT)
- Be familiar with handling procedures and storage requirements
- Be familiar with erection safety and erection preparations
- Properly perform site acceptance test (SAT)
- Be familiar with commissioning and start-up procedures

WHO SHOULD ATTEND

- Electrical Engineers.
- Senior technicians who work in the electrical control and power utilities.
- Technicians who would like to refresh their knowledge.
- Mechanical and chemical Engineers who are interested in control subjects.

COURSE DURATION

5 Working Days

COURSE OUTLINES

1. Introduction to Electrical Switchgear

- General information about switchgear.
- Switchgear use.
- Switchgear requirements.
- Codes and Standards.

2. Types of Switchgear

- Classification of switchgear.
- Switchgear construction:
- The switchgear assembly.
- Switchgear enclosures.
- Mechanical degree of protection.
- Busbars.

3. Switchgear Earthing System

- Switchgear Earthing Requirements
- Components Earthing

4. Medium Voltage Circuit Breakers, Fused Contactors and Load Break Switch

- Description for Each Item
- Differences

5. Switchgear Arc Extinction Media and Theory

- Types of Arc Extinction Media
- Advantages
- Differences

6. Switchgear Protection and Control

- Switchgear Protection Scheme
- Control requirements

7. Switchgear Metering

- Metering specifications
- Metering requirements

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8. Current Transformers

- Types
- Accuracy

9. Potential Transformers

- Types
- Requirements.

10. Factory Acceptance Test (FAT)

- Type test
- Routine tests

11. Handling and Storage

- Handling procedures
- Storage requirements

12. Erection

- Safety
- Erection Preparations

13. Site Acceptance Test (SAT)

- Description
- Requirements

14. Commissioning and Start-up.

- Procedures
- Hand over system

15. Troubleshooting

- How to deal with
- Requirements

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