

Course Overview:

This course is designed to update participants with the latest development of Circuit Breakers and to present some of the more common and updated aspects of low, medium and high voltage switchgear maintenance. It must be understood that there is an incredible variety of equipment used on low, medium and high voltage switchgear today. Switchgears play an important role in the distribution and control of electrical power in manufacturing or power plant and in a utility distribution system. Negligent maintenance practices can lead to power system inefficiency and loss of system reliability.

Course Objective:

Upon the successful completion of this course, each participants will be able to:-

- List the voltage convention classifications used in this course
- Describe switchgear construction
- Describe a ground fault relay system
- Describe the three basic types of low and medium voltage circuit breaker contacts
- Describe the molded case circuit breaker

Course Outline:**General Introduction**

- Electrical engineering basic concepts
- Three phase review and per unit
- Voltage levels
- One line and three line diagram
- Generation system layout
- Transmission system layout
- Substation system layout
- Distribution system layout

Industrial Switchgears

- Fuses
- Auto-reclosers
- Automatic sectionalize
- Circuit Breakers
- Isolator switches
- Load switches
- Relays
- Current transformers
- Voltage transformers

CB Design Specification Based on Short Circuit Current Level**CB Design Specification Based on Arc Phenomena and Circuit Interruption****LV Circuit Breakers****Modern MV and HV Vacuum CB****Modern MV and HV SF6 CB Introduction****Other Type of Circuit Breakers**

- Air Circuit Breakers
- Oil Circuit Breakers
- Dc Circuit Breakers

Training Language:

EN / AR

Training Methodology:

- Presentation & Slides
- Audio Visual Aids
- Interactive Discussion
- Participatory Exercise
- Action Learning
- Class Activities
- Case Studies
- Workshops
- Simulation

Circuit Breaker Inspection, Maintenance and Services

- General inspection technical procedure
- Daily inspection of circuit breakers
- Monthly inspection of circuit breakers
- Annual inspection of circuit breakers
- Disassembly
- Cleaning
- Tightening
- Lubrication
- Equipment's used in testing
- Testing procedure
- Direct testing
- Contact resistance test
- Insulation resistance test
- Test report
- Indirect testing

Circuit Breakers Control, Protection and Testing

- Switchgears control devices and wiring
- Switchgears protection devices and wiring
- Testing Classification
- Testing laboratories
- Description of a simple testing station

CB Troubleshooting

Who Should Attend:

This course is intended for engineers and technicians from substation, distribution station, power utilities, transmission and maintenance in electricity companies. Participants need no specific requirements other than basic understanding of electrical equipments in his work area to gain maximum.

This Circuit Breakers Operation and Maintenance training course is suitable to a wide range of professionals but will greatly benefit:

- Electrical Managers
- Electrical Engineers
- Maintenance Technicians
- Project Engineers
- HSE Professionals