

**MODULE : TB16**

**H.T. & L.T. Switchgear**

**COURSE DESCRIPTION:**

Switchgear classification, Switchgear installation, Switchgear equipment, Metal clad Switchgear and Controlgear.

**Fuse :**

What is Prospective Current?, Cut-off value, Fuse Characteristics, Fuse to Fuse Co-ordination, Application of fuse with Contactor.

**Circuit Breaker :**

Type of Breaker, Comparison of Switchgear (Fuse, MCB, MCCB, ACB), Application of circuit breakers, Tripping Time and Closing Time, Series trip, Shunt trip, Trip Circuit Supervision, Switchgear ratings, Fault Level evaluation / Breaker Rating.

- Legends and Symbols.
- NEMA device Number.
- How to read electrical drawings.
- Direct On-Line starter.
- Star-Delta starter.
- Forward Reverse Starter.
- Circuit breaker closing, Tripping and Anti-pumping circuit.
- Different between Relay and Release.
- Comparison of Release.
- Comparison of Contactor and Circuit Breaker.

- Contractor and Switch utilization category.
- Degrees of enclosure protection for switchgear.
- Layout of switchgears statutory requirements.

**Equipment Protection :**

L.V. Motor Protection, Transformer Protection, Motor Protection, Feeder Protection (Pilot Wire).

**Switchgear Testing :**

Switchgear and Switchgear Assembly, Electrical tests on the Switchgear, Test values, Low Voltage Circuit Breakers (Insulated Case / Moulded Case), Electrical Tests conducted on Low Voltage Circuit Breaker, Medium Voltage Circuit Breaker, Electrical tests to be carried out on Medium Voltage Circuit Breaker, Results of Electrical Tests, Instrument Transformers, Protection Relays.

**C.T. Testing :**

IR value measurement, Polarity checks, Ratio check, C.T. Excitation (Saturation) Characteristics checks, Secondary winding + Lead Resistance measurement, C.T. secondary circuit injection check.

**P.T. Testing :**

IR value measurement, General checks during P.T. Testing, Polarity checks, Ratio check, Secondary injection check, Fuse failure scheme checks, P.T. combined primary/secondary injection checks.