Objectives
- Understand the use of Circuit Breakers, Instrument transformers, Disconnectors and surge arrestors, Power Transformers and its application
- Appreciate the design principles and critical elements of Circuit Breakers, Instrument transformers, Disconnector, surge arrester & Power Transformers & reactors
- Understand the critical elements of operation & maintenance of Circuit Breakers, Instrument transformers, Disconnector, surge arrester & Power Transformers & reactors

Audience
Personnel from Power Utilities, Power Generation, transmission companies & industries and Consultants responsible for engineering, commissioning, operation and Maintenance of substations.

Course topics
HV/MV Circuit Breakers - 11kV to 400kV (SF6 & Vacuum)
- Class Room Module:
  - Role of Circuit Breaker, Operation, Construction
  - Applicable standards, Interrupting principles
  - Breaker Components: Interrupter, operating Mechanisms
  - SF6 properties, SF6 gas filling & handling
  - Manufacturing & Testing
  - Inside the Breaker- Hands on practice, demo
  - Storage, Transport, Installation, operation – Do's & don't commissioning
  - Maintenance & troubleshooting
- Field Module (Factory visit & Demonstration):
  - Pole Assembly, Operating Mechanism Assembly
  - Hands on Practice – Pole, operating mechanism, SF6 gas filling, timing test
**Instrument Transformers**
- Role of Instrument transformers, Operating principles
- Equivalent Circuit, Errors
- Design Parameters, Magnetization, Ferro resonance
- Applicable standards
- CT & CVT selection parameters
- Manufacturing & Testing
- Storage, Transport, Installation, operation – Do's & don’t commissioning
- Maintenance & troubleshooting

**Disconnectors**
- Need of Disconnector, Operation, Construction
- Applicable standards
- Disconnector Components: current path, operating Mechanisms
- Storage, Transport, Installation, operation – Do's & don’t commissioning
- Maintenance & troubleshooting
- Surge Arrestors
- Need of overvoltage protection, Handling of overvoltages

**Surge arrester: Definition, use, features, function**
- Protective characteristic, Classification of surge arresters, IEC energy classes
- Design - polymer housed arresters, Silicone: hydrophobicity
- Applicable standards
- Installation, Maintenance & troubleshooting

**Power Transformers**
- Introduction, basics of Transformer & Reactors– Design Aspects, Insulation,
- Transformer selection & application
- Transformer Accessories
- OLTC – Design, types, selection, testing, operating principle and maintenance
- Manufacturing & Testing,
- Storage, Transport, Installation, operation – key issues & precautions, Do's & Don't, commissioning, essential periodic checks
- Maintenance and Diagnostics checks – condition monitoring of transformers, Oil processing
- Demonstration of - Core Assembly, Active Part Assembly – winding, drying, Final Assembly, Testing.
- Testing of power transformer/reactors at factory and site – interpretation of results
Date and Location

- **Date:**
  
  Call 1: February 17th – 21st  
  Call 2: July 6th – 10th  
  Call 3: November 2nd – 6th  

- **Class time:** 08h30 - 14h30

- **Location:**
  
  ABB Power Products & Systems India Ltd  
  Maneja, Vadodara  
  390013 - Gujarat  
  India

Price

2.750 $ per person

Registration

Register here: madrid.abbuniversity@es.abb.com

Please register before:

- Call 1: February 3rd
- Call 2: June 22nd
- Call 3: October 19th

Contact us

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For more information


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