



TESTING OF ELECTRICAL Power Equipment to International Standards

Course Introduction:

This is an introductory course to understand the basic components of the electrical power system and their design, specifications, construction, testing, installation, commissioning and maintenance. It is aimed at building the necessary practical knowledge of the participant to understand the testing methodology to maintain the uninterrupted power supply and also to know the methodology for testing of equipment's for commissioning and in case of fault to ensure proper restoration of the system.

Course Objectives:

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

- Build an understanding of importance of conservation of energy and performance assessment of electrical equipment's and components
- Understand electrical power system equipment's and components
- Learn specifications, construction, installation, testing and commissioning of electrical equipment's as per standards and practices
- Undertake testing of power, current, potential transformers and overhead transmission lines
- Understand and maintain the protection systems
- Have knowledge on isolators, circuit breakers, motors and generators testing and maintenance
- Learn power cable specifications, laying and testing
- Know the substation grounding system and its testing methods
- Build the knowledge of diagnostic tests to assess the present condition of power system components

Who Should Attend?

Electrical and Mechanical/ Power engineers, Project Engineers, Maintenance Engineers and Supervisors and operating staff of electrical sub stations will find this course very useful for enhancing their knowledge related to electrical systems, components and its testing. The course will also definitely be beneficial for the all the other department people concerned with the plant operations, production, maintenance and safety. It could be also useful for the procurement and quality personnel.

Course Outline:

Transformer Maintenance and Testing:

Transformers are inspected, insulating members are cleaned, and the transformer is tested per standard tests

- Oil Filled Power Transformers
- Dry Type Power Transformers
- Pad Mount Power Transformers
- Non-Flammable Liquid Transformers
- Oil Leak Repairs
- Current (Transformers)
- Transformer Oil Analysis
- Transformer Oil Filtering
- Transformer Oil Replacement
- Transformer Ultrasonic Scanning
- Cast Coil Power Transformers
- Nitrogen Insulated Power Transformers
- Bushing Repairs And Replacement
- Gasket Replacement & Repairs
- Transformer Tank Painting
- Potential Transformers
- Transformer Gas Analysis
- Transformer Acceptance Testing
- Transformer Maintenance Testing
- Power Monitor Retrofits

Infrared and Ultrasonic Scanning

Infrared scans determine the significance of hot spots found in equipment. Equipment is scanned while normal load is applied.

- Electrical Switchgear & Equipment
- Electrical Distribution Systems
- Electrical Transmission Systems
- Electric Induction Furnaces
- Roof and Building Envelope Inspections
- Hospital Maintenance Programs
- Data Processing Maintenance Programs
- Electric Arc Furnaces
- Process (Monitoring)

Circuit Breaker Maintenance and Testing

Circuit Breakers are inspected for material integrity. Insulating members are cleaned. Contact resistance, overcurrent protection, shunt trip, and megger tests are performed per specifications.

- Power Circuit Breakers
- Molded Case Breakers
- Insulated Case Breakers

- Medium Voltage Breakers
- High Voltage Breakers
- Vacuum (Breakers)
- Oil Circuit Breakers
- SF6 Breakers
- SF6 Gas Analysis

Circuit Breaker Reconditioning

Circuit Breakers are reconditioned. Components showing signs of wear are replaced with new.

- Low Voltage
- Medium Voltage
- Oil Circuit Breaker

Circuit Breaker Retrofitting

Circuit Breakers are retrofitted with new overcurrent devices ensuring essential trip specifications.

- Low Voltage - Solid State
- Low Voltage with Power Monitors
- Medium Voltage Vacuum
- Medium Voltage SF6

Equipment Maintained and Tested

Equipment is inspected for material integrity. Insulating members are cleaned and each device undergoes appropriate testing.

- Switchgear Assemblies
- Unit Substations
- Power Centers & Motors Control Centers
- Medium Voltage Starters
- Generator Switchgear
- Lightning Arresters
- Control Devices
- Electronic Overcurrent Devices
- Ground Resistance Testing
- Medium Voltage Contactors
- Ground Fault Equipment
- Transfer Switches
- Emergency Power Equipment Generators
- Cable Hypotential Testing
- Protective Relays
- Instruments and Meters
- Bolted Pressure Switches

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Fees:

To be advised as per course locations. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session