



ELECTRICAL DISTRIBUTION EQUIPMENT Operation and Maintenance

Course Introduction:

It's easy to take electricity for granted - just flick a switch and the light comes on. But electricity can also be an invisible danger that can cause shocks, severe burns and death, as well as fires and explosions.

In some cases, there is no warning of the danger to come. Fortunately, with a proper system of installation, checking and testing, you can protect yourself, your staff and property.

By law, you are required to install, maintain and test your electrical systems and equipments in a safe condition. To achieve this you will need to carry out an assessment to determine what electrical systems and equipments you have in the workplace and how they are used, together with details of the installation, servicing, maintenance and testing procedures. Once you have this information, you should be able to decide whether you need to do anything more.

It is probably best to leave repairs and major works to a competent electrician. But when you consider that 95% of faults and damage can be found by visual inspection ie just by looking, you may decide to do the checking yourself.

Electrical equipment installation and testing must be carried out by a competent person or electrician, using the correct equipment. Unlike visual inspection, which can only spot damage, testing will ensure that the electrical system and appliances are functioning correctly, and that they are properly earthed, etc.

Course Objectives:

Towards the end of the training, the participants will be able to:

- Identify the methods of installation, testing and commissioning electrical equipment in accordance with electricity supply industry procedures.
- Interpret test results to ensure electrical equipment functions in accordance with electricity supply industry specifications.
- Obtain and analyze information on system diagrams/plans to ensure the installation, inspection & testing electrical equipments can be completed in accordance with electricity supply industry standards.
- Identify and interpret all construction drawings required to complete the task in accordance with electricity supply industry standards.
- Identify the resources required, including personnel, plant, equipment and tools to ensure the task can be completed in accordance with electricity supply industry standards and procedures.

- Intended to provide theoretical and practical instruction on the testing and repair of HV/LV equipment of various types.

Who Should Attend?

Engineers, supervisors and technicians with a responsibility for the inspection, testing and maintenance of HV/LV electrical equipments.

Course Outline:

Day 1 - Introductions and Safety

- Goals and discussion
- The smart grid
- Maintenance of electrical equipment
- Managing maintenance
- Safety culture
- Safety integrity level (SIL)
- Electrical safety rules
- Electrical hazards and emergencies

Day 2 - Power Network Fundamentals

- Power network fundamentals
- Faults and protection
- Fault levels
- Types of protection relay
- Numerical relays
- Arc flash mitigation
- Importance of earthing
- Network earthing

Day 3 - Transformers

- Transformer characteristics
- Transformer cooling
- Transformer protection
- On load tap changer operation
- Transformer site testing
- Transformer maintenance
- Dry transformer
- Gas insulated transformer (GIT)

Day 4 - Switchgear and condition monitoring

- Circuit breaker history
- Circuit breaker ratings and operation
- Circuit breaker examples
- Switchgear maintenance
- Properties and deterioration of insulating oils
- Partial discharge
- Thermal imaging
- Corona detection

Day 5 - Medium voltage and high voltage cables faults and locating methods

- MV and HV cable ratings and installation methods
- Common MV and HV cable faults
- Cable fault locating
- MV and HV overhead lines faults
- LV wiring and cabling systems
- Introduction to the wiring regulation

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

