

FAULT FINDING ON ELECTRICAL POWER SYSTEMS (REF:OTSFFEP001)

Course Objectives

To gain a detailed understanding of fault finding on Electrical Power Systems.

Course Description

This course is designed to increase the fault diagnostic skills of engineers and maintenance teams on Power Station and distribution systems. The practical elements of the course centre on advancing the candidate's knowledge of risks, faults and hazards on modern HV switchgear; motors and power station HV systems. The course will progressively move toward advancing the candidate's knowledge of the faults and their rectification on complex electrical systems.

Who Should Attend

Electrical Engineers who have the responsibility for maintaining local electrical power distribution and operating networks. Engineers who need to trouble shoot on many different systems and need to advance their knowledge of fault finding techniques to reduce down time.

Pre-Requisites

All Attendees should have a sound power generation and electrical background.

Course Outcome

At the end of this course you will be able to find faults on electrical power systems.

Course Outline

Day 1

Introduction

Stage 1 - Fundamentals

Revision and Fundamental electrical principles. AC & DC
Use of multi-meters to measure, volts, resistance, current and continuity.
Coils, magnets and transformers.
Simple electricity generation AC single phase & DC.
Basic electrical circuitry and protective devices. (Fuses)
Use of voltage detectors and proving units.

Day 2

Stage Two - HV Principles

Generation of three-phase supply.
Generator peripherals. (Earth Resistor, Generator Transformer et.)
Generation, transmission and distribution.
LV station electrical supplies.
Induction motor. Principles of operation, construction and testing.
Three phase electric circuits and protection
Potential energy levels, faults, hazards and risks.
Electrical Safety, electric shock.
Methods of reducing risk. (RCD's, Centre tapped supplies etc.)

Day 3

Stage Three - Motor starting methods. (DOL, Assisted Start, Soft start.)

Design criteria for direct on line starting of induction motors.
Reading schematic and wiring diagrams.
Construction of an LV motor starter. (Candidate to wire a starter.)

Day 4

Stage Three - Motor protection. (Short circuit, Under voltage, Overload and Balance.)

Motor protection relays and trips.
Contactors, isolators, circuit breakers, relays, timers and PLCs.
Fault finding techniques.



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Day 5

Stage Four

HV station supplies. (General layout of traditional and CCGT.)
Differentiation between RADIAL and FEEDER circuits.
Examination of different types of switchgear.
Differentiation between HV contactors and circuit breakers.

Course Review and Feedback

