

ADVANCED HIGH VOLTAGE ELECTRICAL PROTECTION (FARADAY CENTRE) (REF:OTSHVEP001)

Course Objectives

To gain a detailed understanding of HV Protection.

Course Description

This course is designed to increase the trouble shooting skills and fault diagnostic processes of engineers and maintenance teams on HV Generation and Distribution systems. The practical elements of the course centre on advancing the candidate's knowledge of protection systems. The course will progressively move toward advancing the candidate's knowledge of the faults and their rectification on a ranging of electrical systems.

Who Should Attend

Electrical Engineers and Technicians who have the responsibility for maintaining local electrical operating networks. Engineers who need to trouble shoot and understand protection systems on many different systems and need to advance their knowledge and skills of these systems.

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 troubleshoot high voltage systems.

Course Outline

Day 1

Introduction
Revision of Fundamentals of Electricity
Description of course aims, assessment of existing knowledge, fundamentals of protection
Instrument/Protection Transformers
Current and voltage transformers - theory tutorial and practical exercise involving magnetisation curve

Day 2

Feeder Protection
Principles and application of IDMTL O/C, DO/C, and unit protection to distribution feeder circuits and ring main systems
Fault Energy
Basic theory covering sources, MVA impedances simple calculations

Day 3

Time Graded Overcurrent Protection
Current/time settings, calculations
Injection Testing
Principles, application and practical exercise involving secondary injection
Practical exercises involving testing of various types of relays
Bus Zone Protection
Earth Fault Relays
Bus zone Supervision
Overcurrent

Day 4

Electrical Pressure Testing. To cover the theoretical and practical aspects of electrically testing the insulation of power cables, switchgear, transformers motors etc.

Safety Requirement
Insulation Resistance
Polarisation Index
Flash Testing
AC Pressure Tests
DC Pressure Tests
Practical Testing Exercises

Day 5

Transformer Protection
Theory and application of overcurrent, balanced restricted and standby fault protection, Bucholz relays.

