OVERCURRENT RELAYS PROTECTION COORDINATION

COURSE OVERVIEW

This course serves as an introduction to the operating principles of overcurrent relays with particular focus on overcurrent relays operation time coordination principles.

The course focuses more on current relays installed on radial networks. The problems set out in this course material are taken from many examples of operating practice and methods of solving these problems are indicated. Practical tasks and examples of relay coordination applications given in the relevant sections deal with the topic in more detail.

BENEFITS OF ATTENDING

- Understanding, appreciation and awareness of protection relays
- Learn various protection schemes as applied to electrical equipment technologies evolvement
- Learn how ICT changes have impacted design of relays
- Learn on role and contribution of protection schemes to large and small scale projects

COURSE OUTCOMES

- Share overview of Control/ Secondary Plant in a power system
- Identify role of power system protection
- Share some fundamental principles used in overcurrent relays protection coordination
- Protection schemes

COURSE OBJECTIVE

- On successful completion of this course, participants will be able to:
    - Describe the function of basic protection relays and high voltage equipment used in system protection
    - Appreciate the purpose and details of various tests and checks carried out on electrical overcurrent relays
    - Appreciate the technological changes affecting protection relays
    - Overview of IEC 61850 standard
    - Impact of IEC 61850 on substations and control plant designs

COURSE OUTLINE

This course aims to provide some background information on the principles and application of overcurrent relays operation with particular focus on relay coordination under system fault conditions. The course covers but is not limited to the following:

1. **Purpose of protection**
   Introduction – need for power system protection
   Requirements
   Criteria to be met

2. **Types of protection**
   Introduction
   Current operated

Differential protection
Mechanical protection
Relay types and technologies

3. **Categories of protection**
   Introduction to terms used
   Unit and non-unit protection
   Main and back up protection

4. **Worked examples**
   Introduction and Objectives
   Coordination principles – grading of overcurrent phase and earth faults

WHO SHOULD ATTEND

- Engineering professionals involved in large-scale projects
- Field Services Staff - Control and Primary plant
- Project Engineers and Managers involved in the design of protection schemes
- Anyone wishing to learn the principles of protection systems