



FUNDAMENTALS OF MODERN PROTECTIVE RELAYING

TRCD-FMPR-C-S-1

INTERACTIVE LEARNING CD

INTERACTIVE LEARNING CD ADVANTAGE

The Fundamentals of Modern Protective Relaying Interactive Learning CD uses simulations, hands-on examples and practical applications to provide students with the same information and practical experience they would receive if they attended the in-class course. This CD allows Engineers, Electrical Personnel and Maintenance Staff to learn at their own pace and review the course material as often as they desire.

WHAT WILL I LEARN?

The Fundamentals of Modern Protective Relaying Learning CD will provide the students with an understanding of all the principles and concepts of modern protective relaying. Students will be given an in-depth review of all the components of a power system and proceed to learn how to protect each one of these components including: Feeders, Busbars, Transformers, Generators, Motors and Transmission Lines.



AGENDA

1 - Basic Protection Theory

- Power System components
- Why Protect?
- Power Generation
- Scalars, vectors and phasors
- Symmetrical Components
- Zones of Protection
- Primary Relaying
- Backup Relaying
- Types of Relays
- Transducers
- CTs and CVTs
- RTDs
- Breakers
- Fuses
- Circuit Switches and Sectionalizers

2 - Protective Relays

- Electromechanical Relays
- Digital Relays

3 - Feeder Protection Basics

- Radial Distribution Systems
- Coordination of protective devices
- Radial Feeder Overcurrent coordination

4 - Bus Protection Basic

- Bus protection requirements
- Bus protection by backup Line Relays
- Bus Differential protection
- Auxiliary tripping Relays

5 - Transformer Protection

- Transformer theory
- Transformer Failure and Phenomena
- Transformer Percent Differential
- Overexcitation protection
- Gas protection

6 - Line Protection

- Unit and non-unit protection
- Line Current Differential
- Line Distance protection
- Distance relaying schemes

7 - Motor Protection

- Induction Motor theory
- Current Transformer selection
- Motor Thermal Modeling
- Additional protective elements
 - Short Circuit protection
 - Ground Fault and Ground Fault detection methods

- Phase Current Differential
- Single phase protection
- Under and Overvoltage protection
- Motor Status detection
- Mechanical Jam detection
- Loss of Load detection
- Acceleration Timer
- Starts per hour
- Time between starts
- Bearing protection

- Class settings calculation examples

8 - Generator Protection

- Generator protection functions
- Stator protection
- Rotor protection
- Loss of Excitation
- Other Generator protection systems