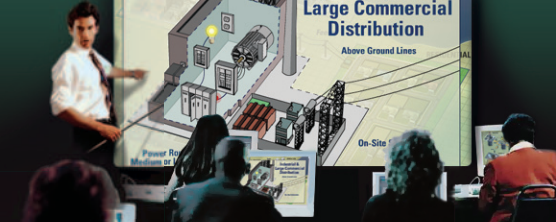




POWER SYSTEM PROTECTION FOR INDUSTRIAL FACILITIES



TRNG-PIND

WHAT WILL I LEARN FROM THIS COURSE?

This course provides a comprehensive understanding of the principles of digital Power System relaying specifically tailored to Industrial facilities. The class will cover the major components of a Power System, basic Power System theory, Feeder, Busbar, Transformer, Motor and Generator protection principles.

PREREQUISITES

- Basic understanding of electrical circuits

WHO SHOULD ATTEND?

Those involved in protecting Industrial Power Systems who require an understanding of the principles of protective relaying will benefit from this course. Students range from recent graduates entering the field of protective relaying to seasoned professionals who require an update on the latest relaying technology.

TUITION

\$1,800 US*

COURSE DURATION

3 Days

CEU CREDITS OFFERED

2.1 Credits

AGENDA

Day 1

Introduction

- Power System components
- Why protect?
- Relaying basics
- Circuit Breakers
- Primary and Backup relaying
- Types of Electromechanical Relays
- Microprocessor Relays
- Properties of Alternating Current
- Introduction to Symmetrical Components
- Current Transformers
- Potential Transformers

Feeder Protection

- Protection elements
- Relay coordination
- Phase TOC (51)
- Phase IOC (50)
- Ground Relaying
- Instructor led Lab exercises
- Fault simulation
- Event Log
- Oscillography

Day 2

Busbar Protection

- Bus Differential element
- Bus protection requirements
- Bus protection schemes
 - High Impedance
 - Linear Couplers
 - Interlocking
 - Unrestrained Differential
 - Percent Differential
- Low Impedance microprocessor-based

Transformer Protection

- Transformer theory
- Transformer Protection elements:
 - Transformer Percent Differential
 - 2nd harmonic inhibit
 - 5th harmonic inhibit
 - Volts/Hz
 - Sudden pressure change detection
- Instructor led Lab exercises

Day 3

Motor Protection

- Induction motor theory
- Motor Thermal Modeling
- Short Circuit
- Ground Fault
- Stator Differential
- Single phase protection
- Under and Overvoltage
- Locked Rotor protection
- Acceleration timer
- Starts per hour
- Time between starts
- Bearing protection
- Instructor led Lab exercises

Generator Protection

- Generator protective elements
 - Stator Differential
 - Neutral Displacement
 - 3rd harmonic
 - Loss of excitation
 - Accidental Energization
 - Low Forward Power
 - Reverse Power
- Instructor led Lab exercises

* Tuition shown is for scheduled courses.
Contact us for custom and on-site pricing.