



# GENERATOR PROTECTION PRINCIPLES & RELAYING

TRNG-GEN

WITH THE SR489, DGP, G60

Interactive Learning CD Available  
See Page 49



## WHAT WILL I LEARN FROM THIS COURSE?

This course begins with an overview of basic Generator theory and the associated protection requirements. Through a combination of lectures and practical Lab exercises, the class will learn how to correctly install and configure GE Multilin's Generator Protection Relays.

## PREREQUISITES

- Basic understanding of AC Generators
- The Generator Protection Interactive Learning CD would be an asset

## COURSE DURATION

5 Days

## WHO SHOULD ATTEND?

Plant electrical maintenance and engineering personnel who wish to gain a better understanding of Generator protection and how to install, test and maintain GE Multilin's Generator Protection Relays.

## TUITION

\$ 3,000 US\*

## CEU CREDITS OFFERED

3.5 Credits

## AGENDA

This class includes fully equipped Hands-On Lab exercises.

### Day 1

#### Introduction

- Overview of the Power System and protective relaying
- Basic Synchronous Generator theory
- Generator grounding
- Stator Differential
- 100% Stator Ground Fault protection (64G, 27TN)
- Timed Overcurrent
- Voltage Restraint
- Current Unbalance
- Loss of Excitation
- Volts/Hz
- Reverse Power
- Under/Overfrequency
- Undervoltage

#### SR489

- Specifications
- Hardware overview
- Mechanical installation and wiring
- EnerVista SR489 Setup Software
- Settings configuration Hands-On Labs
- Metering
- Protection element testing Lab
- Fault diagnostics Lab

### Day 2

#### G60/G30 Relays

- Universal Relay Hardware overview
  - UR Modular concept
  - Family members
  - Hardware configuration
- Mechanical installation and wiring
- Options and ordering

#### EnerVista UR Setup Software

- Settings
  - Product Setup
  - System Setup
- Commands
- Actual Values
  - Front Panel
  - Status and Metering
  - Status and Metering Lab

### Day 3

- Introduction to FlexLogic
  - Logic Gates
- Programming Flexlogic equations
- FlexElements
- Oscillography and Event Log Lab
- Fault Diagnostic Lab
- Saving/loading settings files
- Maintenance procedures
- Adding/Removing modules

### Day 4

#### G60 Protection and control

- Generator Protection elements
- Source configuration
- Generator settings
- G60 protection and control Lab
  - Creating G60 settings file for a typical Generator application

### Day 5

#### DGP

- Modular design
- System overview
- Areas of application
- DGP protective elements
- DGP wiring
- CT/VT
- Inputs and Outputs
- Local MMI
- DGP setup software
- Review of the protection and control settings file for a typical application

25% off the price of the training CD when purchased with the in-class course

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