

# PROTECTIVE RELAY THEORY & APPLICATIONS



The installation, application and coordination of protective relays and systems are an art. This art form involves many disciplines and is both challenging and interesting. Understanding the basics gives you tools to manage these systems. Using the information presented during this course, you will have the ability to make decisions about the suitability, maintenance and testing of your relay system.

This course will introduce the basic operating concepts of protective relays for generation, transmission and distribution of electrical systems. Utilizing ANSI and IEEE standards you will be given the basic understanding of how various relays protect specific applications of an electrical system.

Anyone who works on or near power generation, transmission, or distribution systems should attend this course.

**Course Duration: 8 hours**

## **INTRODUCTION**

Instrument Transformers  
Relay Inputs and Sensing  
Sensing Circuits

## **THE LANGUAGE OF PROTECTIVE RELAYING**

IEEE-ANSI Abbreviations  
IEEE-ANSI Device Numbers  
ASA-Standard Symbols  
Drawing Examples

## **BASIC RELAY THEORY AND OPERATION**

Applicable Devices  
Current Transformers  
Potential Transformer  
Auxiliary Transformers  
Differentials

## **APPLICATIONS**

Over Voltage / Under Voltage  
Under Voltage / Over Voltage  
Comparative Sensing  
Metering  
Sensing/Communications

## **BASIC PROGRAMMING**

Binary  
Analog  
Alarms  
Safeties/Interlocks  
Equipment Specific Applications

## **SAFETY**

Stored Energy  
NFPA 70E Compliance  
PPE Requirements  
Arc Flash Considerations

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