



## PROTECTIVE RELAYING PROGRAM OUTLINE

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### ***UNIT ONE- Basic Mathematics and Electricity***

1. Electrical System Components
2. The Distribution System
3. Basic Math
4. Electrical Circuits
5. Trigonometry and Vectors

### ***UNIT TWO - Fundamentals of Alternating Current***

1. Alternating Current and Circuits Containing Resistance
2. Inductance in Alternating Current Circuits and Resistance and Impedance in Series Circuits
3. Capacitors are not only fun, they're Important Too!
4. Series Circuits: Resistance, Inductive Reactance, and Capacitive Reactance
5. AC Parallel Circuits and Series-Parallel Circuits
6. AC Instruments and Meters
7. AC Instruments and Meters
8. Alternating Current Generators
9. Transformers
10. Transformer Connections and Special Applications

### ***UNIT THREE- Applied Protective Relaying***

1. Philosophy of Protective Relaying
2. Mathematics Review
3. Review of Alternating Current Circuits
4. Phasor Diagrams
5. Symmetrical Components
6. Instrument Transformers
7. Basic Relay Units
8. Protection Against Transients and Surges
9. Generator Protection
10. Transformer Protection
11. Station Bus Protection
12. Line and Circuit Protection
13. Reclosing and Synchronizing
14. Protective Relay Testing and Maintenance

### ***Protective Relaying Lab***

This 5-day lab covers the following: Basic relay co-ordination, Zones of Protection, Relay testing and programming of Schweitzer 351, Standard Electromechanical Relay, Dispatcher Training, Operations Training for How to read One lines, Primary Maps coordination of fuses, ocrs, sectionalizers and S&C Change over devices.