



# Distribution Curriculum

## Distribution System Training

- 8001 AC Voltage Generation
- 8002 Power Factor
- 8003 Impedance and Voltage Drop
- 8004 Three Phase Power Systems
- 8005 System Layout
- 8006 Overhead Lines
- 8007 Underground Distribution Systems
- 8008 Substations
- 8009 Distributed Generation
- 8010 Substation Transformers
- 8011 Distribution Transformers
- 8012 Fault Interrupting Devices
- 8013 Non-Fault Interrupting Devices
- 8014 Voltage Control Devices
- 8015 Fundamentals of Protection
- 8016 Overcurrent Protection
- 8017 Differential Protection
- 8018 Coordination of Protection Devices
- 8019 Overvoltage Protection
- 8020 Communication Techniques
- 8021 SCADA Systems
- 8022 Distribution Automation
- 8023 Programmable Logic Controllers
- 8024 Personnel Safety
- 8025 Insulation Testing
- 8026 Rotating Equipment Maintenance
- 8027 Transformer Maintenance
- 8028 Switchgear Maintenance
- 8029 Line Maintenance
- 8030 Maintenance Management
- 8031 Load Characteristics and Utilization
- 8032 Demand Management
- 8033 Metering
- 8034 Utility Rate Structure
- 8035 The Effects of Deregulation and Competition
- 8036 Power Quality
- 8037 Function of the Operator
- 8038 Abnormal Operating Conditions
- 8039 Service Interruptions

## Electrical Fundamentals

- 7101 Basic Electricity
- 7102 Properties of A.C. Circuits
- 7103 Power & Power Factor
- 7104 Three Phase Systems

## Electrical Relays

- 5901 General Electric Type IAC
- 5902 Westinghouse Type CO
- 5905 General Electric Type IAV
- 5906 Westinghouse Type CV
- 5909 General Electric Type BDD
- 5910 Westinghouse Type HU
- 5913 General Electric Type CEY
- 5914 Westinghouse Type KD
- 5917 General Electric Type Inc
- 5918 Westinghouse Type COQ
- 0601 General Electric Type JBCG
- 0602 Westinghouse Type IRD
- 0603 General Electric Type GCX
- 0604 General Electric Type GCXG

## Electrical Troubleshooting Skills

- 7301 Troubleshooting - Basic Techniques
- 7302 Troubleshooting - Basic Control Circuits
- 7303 Troubleshooting - Motor Control Circuits

## Electric Utility Management

- 7601 The Electricity Business
- 7602 Management Organization
- 7603 Customer Service
- 7604 Electric Utility Accounting
- 7605 Electric Utility Rates & Rate Setting
- 7606 Electric Utility Financing
- 7607 Deregulation and Competition
- 7608 Deregulation in Practice

## Power Quality

- 4501 Power Quality Overview
- 4502 Causes of Power Quality Problems
- 4504 Solution Methods for Power Quality Problems
- 4505 Utility and Customer Roles
- 4506 System Grounding
- 4507 Grounding of Premises & Equipment
- 4508 Powering & Grounding of Electronic Equipment
- 4509 Basic Power Quality Testing & Inspection
- 4510 Power Quality Case Studies
- 4512 Designing for Power Quality - Industrial/Commercial Facilities

## Power System Harmonics

- 4801 Harmonics and Static Power Converters
- 4803 Analysis, Measurement and Mitigation Techniques

## System Protection Technology

- 2101 Elements of System Protection
- 2102 Types of Protective Relays
- 2103 Monitoring System Conditions
- 2104 Fault Characteristics
- 2105 Generator Protection
- 2106 Transformer Protection
- 2107 Bus Protection
- 2108 Motor Protection
- 2109 Line Protection
- 2110 Pilot Protection
- 2111 Protection for System Stability
- 2112 Testing and Commissioning of Protective Schemes
- 2113 Power Line Carrier
- 2114 Fault Investigation and Analysis
- 2115 Introduction to Static Relaying
- 2116 Coordination of Protective Devices
- 2117 Power Supply for Protection and Control Systems
- 2118 Energy Center Operations
- 2119 Telecommunications Protection I (HVSP Devices)
- 2120 Telecommunications Protection II Configuration & Installation
- 2121 Supervisory Control System (SCADA)
- 2122 Inadvertant Trips - Cause and Prevention
- 2123 Fault Calculations and Relay Settings
- 2124 Testing Techniques
- 2125 Programmable Logic Controllers



# Distribution Curriculum

## Transmission System Operation

- 7501 Review of Fundamentals
- 7502 Power Transmission
- 7503 System Voltage Control
- 7504 System Frequency and Tie-Line Control
- 7505 Power Dispatching
- 7506 System Security
- 7507 Operating Under Abnormal Conditions
- 7508 System Restoration
- 7509 Monitoring and control Communications
- 7510 Transmission System Protection
- 7511 The effect of Deregulation on System Operation
- 7512 Power Dispatch Under Deregulation
- 7513 Transmission Control
- 7514 Controlling to NERC Standards: Interconnection Operation
- 7515 Transmission Operations 101 Monitor, Assess, Respond
- 7516 Controlling to NERC Standards: Generation Control and Performance
- 7517 Controlling to NERC Standards: Aspects of System Operation
- 7518 Controlling to NERC Standards: Power System Transactions and Coordination
- 7519 Bulk Electric System Restoration I