SOUTHWESTERN POWER ADMINISTRATION

On-Line Training 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

Gas Turbine Power Generation

2501 Major Components Design and Construction
2502 Gas Turbine Support Systems
2503 Operation of Gas Turbines
2504 Control & Protection Systems
2505 Aero-Derivative Gas Turbines
2506 Routine Maintenance
2507 Major Maintenance
2508 Combined Cycle Operations
2509 Heat Recovery Steam Generator (HRSG)
2510 Generator and Electrical Systems

Hydro-Electric Power Plant Operations

2701 The Hydro-Electric Role in the Power System
2702 Hydro Power Stations
2703 Water Management
2704 Hydro Turbines
2705 Turbine Monitoring and Control
2706 The Hydro-Generator
2707 Generator Monitoring and Control
2708 Hydro Plant Auxiliaries
2709 Operating Electrical Equipment
2710 Hydro Plant Operation & Maintenance

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 Inadvertent Trips - Cause and Prevention
2123 Fault Calculations and Relay Settings
2124 Testing Techniques
2125 Programmable Logic Controllers

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 Interconnection Operation - NERCNNAERO Policies