



Power and Utilities 2016 Catalog



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CONTENT :: COMPLIANCE :: TECHNOLOGY

About **360training.com**



360training.com is a privately held, leading provider of online and classroom delivered training; learning and content management software; and enterprise compliance and risk management solutions. Since 1997, our course libraries have grown to include more than 15 verticals and 6,000 individual titles.

Over 3,000,000 learners have chosen 360training.com to satisfy their training needs. Top-selling programs include Controlling to NERC Standards, Transmission Systems Operations Series, and Hydro-Electric Power Plant Operations Series.

Company History

Established in Austin, TX in 1997, 360training.com has grown steadily to become a market leader in the delivery of online training, corporate compliance solutions, and risk management software. Originally conceived to serve the real estate licensing market, the founders quickly realized the potential in expanding to include other precicensing programs in industries such as insurance and financial services.

The company initially started out with a pure VAR model, letting others sell their content, but capitalized on the rapid shift of training to an online delivery mode. Early success with training courses in OSHA safety, trades & technical, and cosmetology solidified 360training.com's position as a major player in the online education market.

One of the company's founders Sattar, remains the CEO and has twice been nominated for the Ernst & Young Entrepreneur of the Year award. 360training.com also has appeared on the Deloitte Fast 50 as the 6th fastest growing company in Texas.



Key Industries

With courses and training solutions for consumers, corporate, and governmental entities, 360training.com serves a wide range of industries, including:

- Career Training
- Cosmetology
- Environment, Health & Safety
- Ethics & Compliance
- Financial Services
- Food & Beverage
- Healthcare
- Industrial Trades
- Insurance
- Information Technology
- Oil & Gas
- Power & Utilities
- Quality Management
- Real Estate

Future

In the coming years, 360training.com plans to continue to serve our customers with an emphasis on expanding corporate compliance offerings, including a regulatory knowledgebase and risk assessment toolkit.

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Power Plant Control Room Operator Training Series
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System Protection Technology Series
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- 9500 Emergency Table Top Drill Series
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- 9900 System Operation Review Series
- Combined Cycles Technologies Series

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■ = English only, O = Online, EP = Exam Prep, V = Various Formats

900 Series: Power Plant Control Room Operator Training

Designed for plant control room operators, this program highlights the knowledge and skills required to operate a power plant Distributed Control System (DCS) and associated plant systems. Each module in this 15-part series describes the plant system, associated system controls, and typical procedures used during startup, normal, and shutdown operations.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
901	Plant Control System	4	■	■			O
902	Circulating Water System	2	■	■			O
903	Condensate System	3.5	■	■			O
904	Feedwater System	3	■	■			O
905	Boiler Feed Pumps	3	■	■			O
906	Boiler Water and Steam System	3	■	■			O
907	Combustion Air and Flue Gas System	4	■	■			O
908	Boiler Fuel System	2.5	■	■			O
909	Air Pollution Control Systems	1.5	■	■			O
910	Turbine Auxiliaries System Operation and Control	4.5	■	■			O
911	Generator and Auxiliaries System Operation and Control	3.5	■	■			O
912	Unit Integrated Startup and Shutdown	3.5	■	■			O
913	Efficient, Reliable and Environmentally Sensitive Operations	3	■	■			O
914	Abnormal Plant Conditions	1.5	■	■			O
915	Heat Rate Improvement	2.5	■	■			O

1100 Series: Grid Dynamics

This series focuses on critical tasks of controlling, monitoring, measuring system control performance, and enhancing readiness for emergency operations.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
1101	Control Performance Compliance	4	■		■		O
1102	Emergency Operations NERC & Regional Coordinating Authority East & West	4	■		■		O
1103	High Voltage, Transmission, Safety, & Power System Operations	2	■		■		O
1104	Synchronizing Islands	2	■		■		O
1105	Undervoltage and Underfrequency	2	■		■		O
1106	Voltage Control	2	■		■		O

2100 Series: System Protection Technology

This series will train personnel on the principles of protection systems—including different schemes used in the protection of generators, buses, transmission and distribution lines, transformers, and motors.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
2101	Elements of System Protection	2	■		■	■	O
2102	Types of Protective Relays	2	■		■	■	O
2103	Monitoring System Conditions	2	■		■	■	O
2104	Fault Characteristics	2	■		■	■	O
2105	Generator Protection	2	■		■	■	O
2106	Transformer Protection	2	■		■	■	O
2107	Bus Protection	2	■		■	■	O
2108	Motor Protection	2	■		■	■	O
2109	Line Protection	2	■		■	■	O
2110	Pilot Protection	2	■		■	■	O
2111	Protection for System Stability	2	■		■	■	O
2112	Testing and Commissioning of Protective Schemes	2	■		■	■	O
2113	Power Line Carriers	2	■		■	■	O
2114	Fault Investigation and Analysis	2	■		■	■	O
2115	Introduction to Static Relaying	2	■		■	■	O
2116	Coordination of Protection Devices	2	■		■	■	O
2117	Power Supply for Protection and Control	2	■		■	■	O
2118	Energy Center Operations	2	■		■	■	O
2119	Telecommunications Protection I - HVSP Devices	2	■		■	■	O
2120	Telecommunications Protection II - Installation and Configuration	2	■		■	■	O
2121	Supervisory Control System (SCADA)	2	■		■	■	O
2122	Inadvertent Trips - Cause and Prevention	2	■		■	■	O
2123	Fault Calculations and Relay Settings	2	■		■	■	O
2124	Testing Techniques	2	■		■	■	O
2125	Programmable Logic Controllers	2	■		■	■	O

2500 Series: Gas Turbine Power Generation

This training series gives an overview of gas turbine power generation and focuses on the processes and equipment involved to generate power. It discusses the following topics in detail: construction and design features of turbines; support system and auxiliaries; operation, maintenance and protection of systems; combined cycle generation; and heat recovery steam generation.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
2501	Gas Turbine Major Components Design & Construction	2.5	■	■			O
2502	Gas Turbine Support Systems	2	■	■			O
2503	Operation of Gas Turbines	4	■	■			O
2504	Control and Protection Systems	4	■	■			O
2505	Aero-Derivative Gas Turbines	4	■	■			O
2506	Gas Turbine Routine Maintenance	2	■	■			O
2507	Gas Turbine Major Maintenance	2	■	■			O
2508	Combined Cycle Operation	4	■	■			O
2509	Gas Turbine HRSG	2	■	■			O
2510	Gas Turbine Generator & Electrical Systems	2	■	■			O

2700 Series: Hydro-Electric Power Plant Operations

This series provides a better understanding of hydro-electric power generation. It covers the practical aspects of operation and maintenance of all types of installations including pumped storage, remote control, and monitoring through SCADA. The program is presented at the technician level.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
2701	The Hydro-Electric Role in the Power System	4	■	■			O
2702	Hydro Power Stations	4	■	■			O
2703	Water Management	4	■	■			O
2704	Hydro Turbines	1.5	■	■			O
2705	Turbine Monitoring and Control	4	■	■			O
2706	The Hydro Generator	4	■	■			O
2707	Generator Monitoring and Control	2	■	■			O
2708	Hydro Plant Auxiliaries	1.5	■	■			O
2709	Operation of Electrical Equipment	4	■	■			O
2710	Hydro Plant Operation and Maintenance	2	■	■			O

7100 Series: Electrical Fundamentals

This series provides an overall understanding of electrical fundamentals—including the Ohm's Law, AC circuits, transformers and three-phase systems.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7101	Basic Electricity	2	■	■	■	■	O
7102	Properties of AC Circuits	2	■	■	■	■	O
7103	Power and Power Factor	2	■	■	■	■	O
7104	Three Phase Systems	2	■	■	■	■	O

7400 Series: Steam Power & Co-Generation

This series will train personnel on the operation and maintenance of steam turbines and associated equipment, including co-generation applications.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7401	Co-Generation and other Turbine Cycles	4		■			O
7402	Steam Production	4		■			O
7403	Fuels and Combustion	4		■			O
7404	Boiler Operation	4		■			O
7405	Boiler Control (Operationnvironmental, Chemical)	4		■			O
7406	Steam Turbine Construction	4		■			O
7407	Steam Turbine Operation and Control	4		■			O
7408	Power Generation	4		■			O
7409	Plant Auxiliary Systems	4		■			O
7410	Power Plant Maintenance	4		■			O
7411	Combined Heat and Power Systems	4		■			O

7500 Series: Transmission System Operation

The series is designed for power system operators and even new members of the power sector. Standard practice material is included in the program to prepare for more advanced techniques.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7501	Review of Fundamentals	2	■		■		O
7502	Power Transmission	2	■		■		O
7503	System Voltage Control	2	■		■		O
7504	System Frequency and Tie-Line Control	2	■		■		O
7505	Power Dispatching	2	■		■		O
7506	System Security	2	■		■		O
7507	Operating Under Abnormal Conditions	2	■		■		O
7508	System Restoration	2	■		■		O
7509	Monitoring and Control Communications	2	■		■		O
7510	Transmission System Protection	2	■		■		O
7511	Electric Utility Deregulation in North America	2	■		■		O
7514	Controlling to NERC Standards: Interconnection Operation	4	■		■		O
7515	Transmission Operations 101	2	■		■		O
7516	Controlling to NERC Standards: Generation Control and Performance	4	■		■		O
7517	Controlling to NERC Standards: Aspects of System Operations	4	■		■		O
7518	Controlling to NERC Standards: Power System Transactions and Coordination	4	■		■		O
7519	Transmission Restoration 01	2	■		■		O
7520	Bulk Electric System Restoration 02	2	■		■		O
7521	Protective Relays for System Operators 01	4	■		■		O

7700 Series: Condition Monitoring

The series is for all personnel involved in plant maintenance—including operators, maintenance technicians, craftsmen and managers. Topics include practical monitoring techniques used in modern plants, the analysis and interpretation of the rate of equipment deterioration, and the implementation of predictive maintenance.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7701	Plant Maintenance for Operations: Maintenance Management	4		■	■		O
7702	Plant Maintenance for Operations: On-Line Condition Monitoring	4		■	■		O
7703	Plant Maintenance for Operations: Vibration Monitoring & Analysis	4		■	■		O
7704	Plant Maintenance for Operations: Non-Destructive Examination Techniques	4		■	■		O
7705	Condition Monitoring - Electrical Testing I & II	1.5		■	■		O
7706	Liquid Analysis	1.5		■	■		O

7800 Series: Heat Rate Optimization

This series aims to provide a comprehensive discussion of the integrated fossil fuel power plant and improve the operator's ability to optimize thermal efficiency and equipment reliability, thereby improving the plant's economic performance.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7801	Fundamentals of Power Plant Efficiency I	2		■			O
7802	Fundamentals of Power Plant Efficiency II	2		■			O
7803	Factors Affecting Boiler Efficiency	1		■			O
7804	Operator Controllable Losses - Boiler	1		■			O
7805	Factors Affecting Turbine Cycle Efficiency	1		■			O
7806	Operator Controllable Losses - Turbine Cycle	2		■			O
7807	Balance of Plant Operation	2		■			O
7808	Power Plant Control	2		■			O

7900 Series: Combined Cycle Technologies

The series is aimed at engineers, trainers, maintenance staff, and plant operators.

NOTE: See end of catalog for full list of "Combined Cycle Technologies" courses. This only represents our 7900 series courses.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7901	Combined Cycle Principles	4		■			O
7902	Combined Cycle Procedures	4		■			O

8000 Series: Distribution System Training

After a review of electrical fundamentals, this series covers various aspects of distribution system technology—including distribution networks and equipment, system protection, control and automation equipment testing and maintenance, and the distribution system operator's role. It is presented on the technician level and knowledge of basic electricity theory is assumed.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
8001	AC Voltage Generation	2	■	■		■	O
8002	Power Factor	2	■	■		■	O
8003	Impedance and Voltage Drop	2	■	■		■	O
8004	Three Phase Power Systems	2	■	■		■	O
8005	System Layout	2	■	■		■	O
8006	Overhead Lines	2	■	■		■	O
8007	Underground Distribution Systems	2	■	■		■	O
8008	Substations	2	■	■		■	O
8009	Distributed Generation	2	■	■		■	O
8010	Substation Transformers	2	■	■		■	O
8011	Distribution Transformers	2	■	■		■	O
8012	Fault Interrupting Devices	2	■	■		■	O
8013	Non-fault Interrupting Devices	2	■	■		■	O
8014	Voltage Control Devices	2	■	■		■	O
8015	Fundamentals of Protection	2	■	■		■	O
8016	Overcurrent Protection	2	■	■		■	O

8000 Series: Distribution System Training (cont.)

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
8017	Differential Protection	2	■	■		■	O
8018	Coordination of Protection Devices	2	■	■		■	O
8019	Overvoltage Protection	2	■	■		■	O
8020	Communication Techniques	2	■	■		■	O
8021	SCADA Systems	2	■	■		■	O
8022	Distribution Automation	2	■	■		■	O
8023	Programmable Logic Controllers	2	■	■		■	O
8024	Personnel Safety	2	■	■		■	O
8025	Insulation Testing	2	■	■		■	O
8026	Rotating Equipment Maintenance	2	■	■		■	O
8027	Transformer Maintenance	2	■	■		■	O
8028	Switchgear Maintenance	2	■	■		■	O
8029	Line Maintenance	2	■	■		■	O
8030	Maintenance Management	2	■	■		■	O
8031	Load Characteristics and Utilization	2	■	■		■	O
8032	Demand Management	2	■	■		■	O
8033	Metering	2	■	■		■	O
8034	Utility Rate Structure	2	■	■		■	O
8035	The Effects of Deregulation and Competition	2	■	■		■	O
8036	Power Quality	2	■	■		■	O
8037	Function of the Operator	2	■	■		■	O
8038	Abnormal Operating Conditions	2	■	■		■	O
8039	Dealing with Service Interruptions	2	■	■		■	O

9000 Series: Applying NERC Standards

The number of NERC-approved standards is on the rise—and everybody needs to keep up. This program takes you through the different NERC standards and explains what each standard is all about. With full-access to the actual text version of the NERC standards, you will be able to review each standard before taking the exam at the end of the course.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
9101	Applying NERC Standards 1	4.5	■		■		O
9102	Applying NERC Standards 2	4	■		■		O
9103	Applying NERC Standards 3	5	■		■		O
9104	Applying NERC Standards 4	5	■		■		O
9200	Blackout 2003: A Lesson in Emergency Preparedness	2	■		■		O
9300	NERC Reliability Standards Compliance Awareness	1	■		■		O
9400	NERC Standard PER-005 System Personnel Training	1	■		■		O
9600	NERC CIP Overview Training	4	■		■		O

9500 Series: Emergency Table Top Drill

This module is comprised of operational problem-solving exercises for emergency preparedness. Created with the NERC annual emergency preparedness training in mind, this web-based program incorporates AGC summary screens, system status diagrams, and alarm screens for a realistic “table top exercise.”

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
9501	Emergency Table Top Drill Part 1	2	■		■		O
9502	Emergency Table Top Drill Part 2	3	■		■		O
9503	Emergency Table Top Drill Part 3	3	■		■		O
9504	Emergency Table Top Drill Part 4	9	■		■		O
9505	Emergency Table Top Drill Part 5	8	■		■		O

9900 Series: System Operations Review

This program aims to provide a comprehensive review of crucial system operations for exam preparation or continuing education purposes. Note that if a person completes this course before attaining NERC certification, then it does not warrant NERC CE credits. It does not include or imply content of any NERC certification exam answers.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
9901	System Operations Review Part 1	6	■		■		O
9902	System Operations Review Part 2	4	■		■		O
9903	System Operations Review Part 3	2	■		■		O
9909	Reliability Coordinator Operator Certification Exam Prep	No CE Hours					O, EP

Combined Cycle Technologies Series

The series is aimed at engineers, trainers, maintenance staff, and plant operators.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
2501	Gas Turbine Major Components Design & Construction	2.5	■	■			O
2502	Gas Turbine Support Systems	2	■	■			O
2503	Operation of Gas Turbines	4	■	■			O
2504	Control and Protection Systems	4	■	■			O
2505	Aero-Derivative Gas Turbines	4	■	■			O
2506	Gas Turbine Routine Maintenance	2	■	■			O
2507	Gas Turbine Major Maintenance	2	■	■			O
2508	Combined Cycle Operation	4	■	■			O
2509	Gas Turbine HRSG	2	■	■			O
2510	Gas Turbine Generator & Electrical Systems	2	■	■			O
7401	Co-Generation and other Turbine Cycles	4		■			O
7405	Boiler Control (Operationnvironmental, Chemical)	4		■			O
7406	Steam Turbine Construction	4		■			O
7407	Steam Turbine Operation and Control	4		■			O
7409	Plant Auxiliary Systems	4		■			O
7801	Fundamentals of Power Plant Efficiency I	2		■			O
7802	Fundamentals of Power Plant Efficiency II	2		■			O
7805	Factors Affecting Turbine Cycle Efficiency	1		■			O
7806	Operator Controllable Losses - Turbine Cycle	2		■			O
7901	Combined Cycle Principles	4		■			O
7902	Combined Cycle Procedures	4		■			O

Controlling to NERC Standards Series

The objective of “System Control” is to create an orderly flow of power from the generating source to the load (power consumer) while maintaining the utmost level of safety, reliability, and stability in the system. This series covers the requirements and procedures of “System Control” and the relationships of these requirements and procedures to applicable NERC Standards.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7514	Controlling to NERC Standards: Interconnection Operation	4	■		■		O
7515	Transmission Operations 101	2	■		■		O
7516	Controlling to NERC Standards: Generation Control and Performance	4	■		■		O
7517	Controlling to NERC Standards: Aspects of System Operations	4	■		■		O
7518	Controlling to NERC Standards: Power System Transactions and Coordination	4	■		■		O
7519	Transmission Restoration 01	2	■		■		O
7520	Bulk Electric System Restoration 02	2	■		■		O
7521	Protective Relays for System Operators 01	4	■		■		O

Electric Utility Management Series

A dynamic Training Program encompassing all aspects of utility management, activities and objectives including operation, financial control, regulatory compliance, and structure to cope with recent industry trends.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7601	The Electricity Business			■	■	■	V
7602	Management Organization			■	■	■	V
7603	Customer Services			■	■	■	V
7604	Electric Utility Accounting			■	■	■	V
7605	Electric Utility Rates and Rate Setting			■	■	■	V
7606	Electric Utility Financing			■	■	■	V
7607	De-Regulation and Competition			■	■	■	V
7608	De-Regulation in Practice			■	■	■	V

Electrical Troubleshooting Skills Series

This series of award winning interactive CD ROM training programs are ideal for learning proven troubleshooting techniques and applying them in a very realistic simulated environment.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
7301	Troubleshooting Electrical Circuits			■	■	■	V
7302	Troubleshooting Control Circuits			■	■	■	V
7303	Troubleshooting Motor Circuits			■	■	■	V
7304	Troubleshooting Industrial Controls			■	■	■	V

Environmental Protection Control for Thermal Power Generating Plant Series (power plant emission management)

Designed to aid in upgrading knowledge and understanding of environmental concerns as they relate to thermal power generating plants. It covers most of the common equipment and processes in use today to ensure that the power generation plant is in compliance with environmental legislation.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
2401	Power Plant Emissions			■			V
2402	Flue Gas Desulfurization Systems - FGD			■			V
2403	NOX Reduction Systems			■			V
2404	Treatment of Liquid Effluents			■			V
2405	Particulate Removal and Solid Waste			■			V
2406	Handling Hazardous Materials			■			V
2407	Burning Waste			■			V

Diesel Power Plant Operations Series

This program is designed to aid in upgrading knowledge and understanding of diesel power generation. It covers the practical aspects of operation and maintenance of installations including local, remote control and monitoring. The program is presented at the technician level.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
4601	Diesel Engines for Power Generation			■			V
4602	Diesel Engine Support Systems			■			V
4603	Power Generation			■			V
4604	Diesel Plant Operation			■			V
4605	Diesel Plant Maintenance			■			V
4606	Stand - By Diesel Generator Maintenance			■			V

Electrical Relay Test & Maintenance Series

Each module deals with specific relays produced by individual manufacturers. Each lesson is divided into two parts.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
5901	General Electric Type IAC			■	■	■	V
5902	Westinghouse Type CO			■	■	■	V
5905	General Electric Type IAV			■	■	■	V
5906	Westinghouse Type CV			■	■	■	V
5909	General Electric Type BDD			■	■	■	V
5910	Westinghouse Type HU			■	■	■	V
5913	General Electric Type CEY			■	■	■	V
5914	Westinghouse Type KD			■	■	■	V
5917	General Electric Type INC			■	■	■	V
5918	Westinghouse Type COQ			■	■	■	V
0601	General Electric Type JBCG			■	■	■	V
0602	Westinghouse Type IRD			■	■	■	V
0603	General Electric Type GCX			■	■	■	V
0604	Westinghouse Type GCXG			■	■	■	V

Meter Technician Training Series

This series is designed to aid in upgrading one's technical knowledge and understanding of power quality issues. The basic parameters of power quality, the problems caused by different types of electrical equipment and ways of mitigating the problem are covered. The series is focused at the technician/operator level.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
0701	Review of Electrical Fundamentals (1)				■	■	V
0702	Review of Electrical Fundamentals (2)				■	■	V
0704	Calibration of Single - Phase Meters				■	■	V
0705	Calibration of 3 - Phase Meters & Sample Testing				■	■	V
0706	Single - Phase Self-Contained Meter Installation				■	■	V
0707	Single - Phase Transformer Type Meters				■	■	V
0708	Thermal Demand Meter Operation & Calibration				■	■	V
0709	Integrating and Rectithermal Demand Meter Operation & Calibration				■	■	V
0710	Vector Analysis Delta Connections				■	■	V
0711	Metering 3 - Phase Delta Connections				■	■	V
0712	Metering 4 - Wire Systems				■	■	V
0713	Network Services: Measuring VARS & VA				■	■	V
0714	Poly Installation Verification				■	■	V
0715	Troubleshooting Polyphase Installations & Power Theft				■	■	V
0716	Specialized Metering				■	■	V
0717	Power Factor Correction & Load Factor				■	■	V
0718	Digital Metering (1)				■	■	V
0719	Digital Metering (2)				■	■	V
0720	Dealing with the Customer				■	■	V

Power Quality Series

This series is designed to aid in upgrading one's technical knowledge and understanding of power quality issues. The basic parameters of power quality, the problems caused by different types of electrical equipment and ways of mitigating the problem are covered. The series is focused at the technician/operator level.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
4501	Power Quality Overview				■	■	V
4502	Causes of Power Quality Problems				■	■	V
4503	Impact of Low Quality Power				■	■	V
4504	Solution Methods for Power Quality Problems				■	■	V
4505	Utility and Customer Roles in Power Quality				■	■	V
4506	System Grounding				■	■	V
4507	Grounding of Premises & Equipment				■	■	V
4508	Powering & Grounding of Electronic Equipment				■	■	V
4509	A Primer for Power Quality Testing & Inspection				■	■	V
4510	Power Quality Case Studies				■	■	V
4511	Designing for Power Quality - Electronic Facilities				■	■	V
4512	Designing for Power Quality - Industrial/Commercial Facilities				■	■	V

Power System Harmonics Series

This series is designed to familiarize engineers in the quality and industrial sectors with the fundamentals of harmonic distortion. The causes, systems parameters, operating conditions and equipment related to harmonic distortion are examined. Emphasis is then shifted to problem analysis and measurement, mitigation techniques and industry standards. The knowledge gained is then applied in some actual case studies.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
4801	Power of Quality Overview				■	■	V
4802	Causes of Power Quality Problems				■	■	V
4803	Impact of Low Quality Power				■	■	V
4804	Solution Methods for Power Quality Problems				■	■	V

Power System Operation Series

Upon completion of this series, the technician will understand the concepts and technology of electric power system operation and dispatch. Particular attention is given to emergency situations and system recovery.

Course #	Courses	Course Hours	NERC CE	Generation	Transmission	Distribution	Additional Info
5101	Review of Electrical Fundamentals I				■	■	V
5102	Review of Electrical Fundamentals II				■	■	V
5103	Elements of the Power System I				■	■	V
5104	Elements of the Power System II				■	■	V
5105	Elements of the Power System III				■	■	V
5106	Steady - State Power Flow				■	■	V
5107	Power Flow Studies				■	■	V
5108	Steady - State Voltage Control				■	■	V
5109	Economic Operation I				■	■	V
5110A	Economic Operation II				■	■	V
5110B	Economic Operation III				■	■	V
5111	Constraints of Steady - State Operation				■	■	V
5112	Dynamic System Performance Concepts				■	■	V
5113	Equipment Response to Abnormal Conditions I				■	■	V
5114	Equipment Response to Abnormal Conditions II				■	■	V
5115	Power System Communications				■	■	V
5116	Protective Relaying A & B				■	■	V
5117	Normal Operating Hazards and Safety A & B				■	■	V
5118	Emergency Conditions				■	■	V
5119	Recovery from Major Disasters				■	■	V
5120	System Operating Manual				■	■	V



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