

## EPTC Course Descriptions FY24

**NERC** - Indicates courses recognized by the North American Electric Reliability Corporation as approved learning activities.

### **Fundamentals of Electricity Series (Virtual) \$1,875.00**

This 3-day course consists of 4 learning modules, ranging from 3 to 4 hours each. Each module also includes learning engagement activities, all followed by an end of course learning assessment and course evaluation. The topics of these modules include Introduction to Electricity & DC Series Circuits, DC Parallel Circuits, DC Complex Circuits, and an Introduction to AC Power. Associated NERC Standards will be discussed.

*Target audience: As initial or refresher training on electrical theory for the technical electrical utility employee.*

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### **Generation Series (Virtual) \$1,875.00**



This 3-day course consists of 6 learning modules, ranging from 3 to 4 hours each. Each module also includes learning engagement activities, all followed by an end of course learning assessment and course evaluation. The modules topics include generator principles and mechanical operations, governor speed control, synchronizing, common trouble alarms and generator relay protection. Associated NERC Standards will be discussed.

*Target audience: Generation and transmission system operating personnel, including but not limited to craft positions and technical support positions.*

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### **Power System Principles I & II (Virtual) \$300.00**

This is a self-paced training, the purpose of the Power System Principle module is to conduct a brief review of some fundamental math concepts that are very important to have an enhanced experience when discussing and applying the principles of electrical theory in AC and DC electric circuits. Please disregard the dates: the course is self-paced. Once registered, we will send you instructions on how to take the training.

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### **System Operations & Emergency Operations Series (Virtual) (partially) \$1,875.00**



This 3-day course consists of 6 learning modules, ranging from 3 to 4 hours each. Each module also includes learning engagement activities, all followed by an end of course learning assessment and course evaluation. The module topics include Interconnected System Operations, Communications, Power System Dynamics, System Operating Limits (SOL) & Interconnected Reliability Operating Limits (IROL), Blackstart Principles, and Geomagnetic Disturbances (GMD). Associated NERC Standards will be discussed. Associated NERC Standards will be discussed.

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*Target audience: Transmission and generation system operating personnel, including but not limited to craft positions, technical support positions or personnel otherwise associated with power system operations.*

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### **Transmission Series (Virtual) (majority) \$1,875.00**



This 3-day course consists of 6 learning modules, ranging from 3 to 4 hours each. Each module also includes learning engagement activities, all followed by an end of course learning assessment and course evaluation. The module topics include Transmission System Principles, system equipment, substations, system operations, transmission system relay protection, and high-voltage DC (HVDC) transmission systems. Associated NERC Standards will be discussed.

*Target audience: Transmission and generation system operating personnel, including but not limited to craft positions and technical support positions.*

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### **AC/DC Fundamentals (In Person) \$6,250.00**

This instructor led in-person training encompasses 80 hours of classroom and lab instruction over two weeks. Lectures will be augmented with hands on Lab Volt exercises similar to NJATC theory workbooks. Its goal is to introduce common concepts encountered by those within the apprentice Lineman, Meter Relay and Substation Electrician trades. A math review and introductory concepts of DC and AC theory are presented in a conversational and shared learning environment to enhance learning. It will align with NJATC textbooks, workbooks, and materials. In addition to the targeted apprentice program audiences of USACE, USBR and WAPA, this course is suitable for anyone with an interest or needing fundamental electrical concepts related to substation design and operation.

*Target audience: Intended for newly onboarded apprentice field personnel. Basics of AC and DC theory are presented and aligned with NJATC core curriculum. Presentations will be augmented with LabVolt FACET training systems for hands on learning.*

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### **Overview NEXT (In Person w/Tour) \$1,875.00**

Overview NEXT is a three-day course intended to introduce electrical theory and concepts to include how electrical power is produced and delivered to the end use customer. This course will provide an overview of the interconnected power system (grid) operation including system equipment for generation, transmission, and distribution. It will also include a description of the type, role and function of Electric Utilities and the regulatory and compliance requirements in North America. On day 2 of the course students will visit a hydropower generating station, a high voltage electrical substation, and a Transmission System Operations Center. Day 3 students will be introduced to the EPTC Miniature Power System (MPS) where students will participate in demonstration/performance activities designed to reinforce learning through a hands-on experience with power system equipment operation.

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NOTE: The tour will be based upon system conditions and availability of real-time system and facility personnel to accommodate guests. All guests must meet all visitation policies of the hosting facilities, including appropriate clothing, to include closed-toe shoes, full length pants and long sleeve shirts preferably primarily made of cotton.

*Target audience: Intended for non-technical employees of an Electric Utility, to include power generation, transmission, and distribution operating companies.*

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### **Power Plant and System Operations (Hybrid Series – 1st week virtual, 2nd week in person) \$5,000.00**

This course provides in-depth knowledge of power plant operations. Generating equipment and its protection, governor response, and voltage regulating equipment are examined. Concepts including power system dynamics and the inter-dependency of the interconnected electric power designed to be followed up with hands-on operation of the EPTC's Miniature Power System by problem solving exercises in the EPTC's Miniature Power System.

*Target audience: Power Plant Operations personnel, including but not limited to Generator Operators, Power Plant technical support and maintenance personnel.*

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### **Power Systems Operations for Maintenance Personnel (In Person) \$2,500.00**

Provides general knowledge of power plant operations, generating equipment and its protection, governor response, and voltage regulating equipment. It explores general information on Transmission system concepts and the inter-dependency of the operation of the electric power system and maintenance through hands-on operation of the EPTC's Miniature Power System including problem solving exercises and application of acceptable safety practices and communications protocols.

*Target audience: This class is intended for both apprentices and journeymen maintenance technicians (craft personnel) from across the transmission system and power generation enterprise.*

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### **Relaying for Operations Personnel (In Person) \$2,500.00**



This training course consists of segments which house learning modules delivered with instructor led participative lectures guided by power point presentations to review power system relay protection systems theory, concepts, equipment (protection system components) and their applications. These learning activities are supported by scenario-based simulation activities in which the students are evaluated based upon their performance and demonstration/application of concepts through hands on exercises or activities using the Miniature Power System (MPS). Associated NERC Standards will be discussed.

*Target audience: This training is targeted to Transmission System Operating personnel to familiarize them with common protection schemes and relay operations used in interconnected transmission systems.*

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### **Switching and Grounding (In Person) \$2,500.00**

This training includes a detailed introduction to WAPA Power System Operations Manual Chapter 1, Power System Switching Procedure, switching and communication and performance practices incorporating the live Miniature Power System. Simple print reading for switchman and switching review, followed by an in-depth review of personal protective grounding and a simple review of Arc Flash principles and considerations. This course is 4-days long.

*Target audience: all personnel that might be expected to perform transmission system switching and tagging operations and/or place personal protective grounds, especially those that switch on WAPA systems.*

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