



Power Delivery Crew Methods & Training Training Course Catalog 2010

Ships	Course Title/Description	Starting Time
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General Courses

9150	Power Delivery Overview -This course is designed to provide personnel with a basic understanding of our core business. Participants will receive hands-on practice involving system operations, hand tools, material familiarization, metering, mechanized equipment and public safety.	8 am
1446	Basic Pole Climbing -This course is designed to provide the basics of pole climbing. Individuals enrolled in this 1-week class will receive practical experience in pole climbing. Individuals should attend this class prior to completing 6 months of employment.	
1476	**Leadership Preparation -Participants selected for this 1-week class should be those individuals who are currently in leadership roles such as Lead Lineman, Crew Leaders and Lineman or those employees who possess leadership potential.	
8522	**Rigging -The objective of this class is to provide distribution and transmission line workers with rigging skills associated with their work. This is an intensive hands-on 1-week class.	
9031	**Chainsaw Safety -This course is designed to teach individuals basic chainsaw safety.	
1490	Safe Load Lifting with Mobile Crane and Derricks -This 2-day class is designed to prepare employees for the safe use of cranes and derricks for lifting operations.	8 am
9965	Electric System Operating Procedures -This 2 ½ -day class is designed to provide each participant with an understanding of the operating procedures of APCo. Successful completion of this class is one of the prerequisites for being placed on the Official Clearance List. This course is intended for personnel not currently on the Official Clearance List. Each individual's knowledge of these procedures will be evaluated.	8 am
8539	**Electric System Operating Procedures Review -This 1-day course is designed as a refresher for those individuals who are currently on the Official Clearance List.	

General Courses-continued

- 6883 **Work Zone Traffic Control**-This course was designed to establish basic uniform Procedures for traffic control devices used by APCo personnel. These devices will Be those used while working within the rights of ways, streets and highways Open to the public. The course contents includes the standards and guidelines found In Part 1, 5 and 6 of the Manual on Uniform Traffic Control Devices and the Requirements of the Americans with Disability Act.
- 7527 **On-The-Job-Training Sponsor**-This 6 hr course is designed to teach the important aspects of training other employees. This class gives each student an opportunity to observe proper instruction techniques including mentoring, coaching and how to demonstrate a work method.

Distribution Courses

- 1479 **Advanced Underground/Switching**-This 1 week course consists of modules of instruction on ways to troubleshoot and perform switching on an URD system. Also covered are the various types and applications of URD switchgear.
- 1448 **Distribution Overhead Troubleshooting**- This 1-week course is designed to assist in preparing linemen for advancement to Lead Lineman. Content includes an overview of the latest equipment, tools, methods and procedures.
- 7117 **Basic Underground Review**- This 1-day road course is designed to provide an overview for distribution employees working in the underground environment. This course is delivered to your location.
- 9895 **Underground Switching Review**—This 1 day course presents instruction on system design, map reading, troubleshooting techniques, writing switching from maps. This course can be presented at your location.
- 1325 **Energized Distribution Line Work Review**-This road course is biannual required training for any employee who is expected to perform distribution gloving work. This 2-day course includes classroom and field exercises.
- 8892 **De-Energized Line Work Review**-This course is a refresher course that is taught in conjunction with the ESOP Review course. This course is classroom presentation only.

Transmission Courses

- 1478 **Transmission Switches**-This 2-week course covers classroom instruction and hands-on installation & adjustment of various transmission switches. Training Center Only.
- 9969 **Transmission Temporary Protective Grounding**- This 3 hr course is the initial grounding training for all new transmission employees. Training Center or at crew location.

7486 **44 KV Gloving**-This 2-week course is designed for initial training to prepare Transmission Crews for performing 44 KV gloving procedures. Training Center or at crew location.

Transmission Courses-continued

8330 **44KV Gloving Review**-This 1-week review is biannual required refresher training for anyone required to perform 44 KV gloving procedures. Training Center or at crew location.

8136 **Transmission Hotstick Training**-This 2-week training is designed as initial training for Transmission Crews who will perform stick work. Training Center or at crew location.

1463 **Transmission Hotstick Review**-The 3 day class is required bi-annual refresher course for all employees performing hotstick procedures. Training Center or at crew location.

1199 **Transmission Hook Ladder & Work Platform**-This 4 -hour course is designed to prepare Transmission crew workers for using these devices. Training Center or at crew location.

017210 **ESOP Review for Transmission Crews**-This is a 4 hrs course designed as a review of the Electric System Operating Procedures for Transmission personnel who are already on the clearance list.

1415 **Pole Top/Transmission Structure Rescue**-This 4 hr course is designed to demonstrate safe and proper rescue procedures to be used on transmission structures. Training Center or at crew location.

014299 **Descending Device for Transmission Crews**-This 4 hr course is designed to familiarize all crews with the appropriate descending devices used by transmission crews. Training Center or crew location.

013255 **Distribution Gloving Review for Transmission Crews**-This 2 day course is designed to provide up-to-date distribution gloving procedures to transmission crew personnel. Training Center or crew location.

8892 **Transmission Temporary Protective Grounding Review**-This 4 hr class provides a refresher for transmission personnel who have already had the initial grounding class. This class is required training on a biannual basis. Training Center or at crew location.

Substation Courses

1461 **Substation Familiarization**- This course covers Substation Safety, entry and equipment operations in a substation. 2-3 hrs. Training is held at the Training Center or at the crew location.

017151 **Substation Blueprint/Troubleshooting I**-This course is for the new E & W Journeyman. This 1 week course includes basic blueprint reading and hands-on troubleshooting of substation equipment and is only taught at the Training Center.

017131 **Substation Blueprint/Troubleshooting II**-This 1-week course is an advanced curriculum of Blueprint/Troubleshooting I. The course is designed for an experienced E & W Journeyman and is taught only at the Training Center. **Substation Blueprint/Troubleshooting I is a prerequisite for this course.**

9963 **Substation Blueprint/Troubleshooting Road Course**-This road course covers Basic Substation Equipment Blueprint reading and hands-on troubleshooting of substation Breakers, LTC's, Regulators, Throwover schemes and various other equipment.

Substation Courses----Continued----

10304 **Transmission & Distribution Substation Switching**- This 1 ½ -day course is designed for personnel who will be required to perform switching in a transmission or distribution substations. LOL's and line crew personnel would greatly benefit from this course.

01197 **Substation Welding**-This 1-week course covers welding applications unique to Substations. Training Center Only.

08521 **Substation Test Equipment**-This 1-week class is designed for the new E & W Journeyman. This course covers test equipment associated with maintenance and troubleshooting of substation equipment. Training Center Only.

6317 **Substation Batteries/Relays**-This 3-day course covers installation and maintenance of substation batteries, chargers mechanical and electronic relays. Training Center Only.

016142 **SF-6 Gas Handling**-This 3-day course covers the safe and efficient handling of SF-6 gas used in substation equipment. Training Center Only.

016143 **Substation Switch Installation and Adjustments**- This 3 day course covers installation and adjustment of various substation switches. Training Center Only.

017132 **Substation Distribution Oil Breakers**-This 1-week course covers the maintenance of distribution oil breakers according to Southern Company Maintenance Standards. Training Center Only.

017108 **Substation Structure Climbing**-This 4 hr course is designed for new substation employees who will be required to climb substation structures. Training Center Only.

017109 **Substation Structure Rescue**-This 2-3 hr course covers the safe and efficient method of rescuing an employee from a substation structure. Training Center Only.

Network Courses

7553 ****Network Protector Fundamentals**-This 1-week course is designed to give network personnel a basic understanding of protectors.

7726 ****Network Impluse Phasor**-This 4-hour course is to familiarize personnel with the correct procedures used for properly identifying de-energized PILC cable prior to cutting or splicing.

7769 ****Network Oil, Tape and Preparation**-This 2 -day course is designed to provide network personnel with a basic understanding of preparations needed for PILC Splicing.

7483 ****Network Transition Splice**-This 1-day course provides employees with knowledge of the procedures for construction of the Hotsplice Transition Splice.

10331 ****PD-Cable Design, Splice, Termination**-This 1-day course provides employees with PD-Design, Splicing and Termination. This course is designed for personnel that splice and terminate all types of cable. Training Location: Varnons or Your Location.

Network Courses-continued

- 9936 **PD-Network Underground Switch Procedure**-This 1-day course applies to network employees and engineers and may also be presented as a road training course. This course covers in
Module 1: Substation breakers, network transformers, network protectors, potential indicators
Module 2: Electric System Operating Procedures, grounding procedures, single line drawing, network switching procedures.
- 10335 **PD-Network Protector Testing and Relay Calibration**-This 6 -Hour course is a follow up to the fundamental course. It is a refresher for network employees, Network Protector Fundamentals, SHIPS #7553 is a prerequisite. The course content is Operations of MultiAmp & Westinghouse 450 test set, Calibration of relays, Hands on testing and calibration of Network protector relays.
- 10332 600 AMP Elbow APP/Term**-This 1 ½ - Day course is designed for apprentices, journeyman, leads and line personnel working with 600 AMP Elbows. This course is also available as a road training course. Topics covered in the course are, Cable Preparation, Identify Elastimold products and diversified installation capabilities, hands on Termination of 600 AMP Elbow on transformers, hotsplicer and SF6 switches.
- 10333 PILC Secondary Splice/Disassembly**-This 1 -week course is designed for all levels of network underground personnel and may be either as a resident or road training course. The course covers: Cable setup, Cable preparation, Phasing of cable (Energized), Splicing energized cable, lead sleeve preparation, disassembly of splice.
- 7429 Network PILC Lead Wiping**-This 3 -week course is designed for all network underground personnel. The course is a resident and road training course that addresses basic skills and fundamentals used in sweat solder connectors and wiping lead sleeves for PILC cable splicing. Participants will learn proper safety procedures and techniques for handling molten lead.
- 10334 **PILC Transformer Termination**-This 1-week course is designed for all network underground employees who will be required to construct PILC Transformer terminations.

Job Specific Training Programs

Accelerated Lineman Training Program

Module 1 SHIPS # 11944

<u>Week 1</u>	<u>Subject</u>	
Day 1	T & D System Overview	2 hrs
	Safety and Health	2 hrs
Day 2-3	Basic Electricity	12 hrs
	Basic Math	4 hrs
Day 4	Hand Tools & Test Equipment	8 hrs

Day 5	T & D Materials Familiarization	4 hrs
<u>Week 2</u>		
Day 1	Risk Services	4 hrs
Day 2-3	Ropes, Handlines & Rigging	16 hrs
Day 4	Ladder Familiarization	2 hrs
Day 4-5	Basic Standards and Prints	10 hrs
<u>Week 3</u>		
Day 1	Interpersonal Skills	4 hrs
Day 2-3	Mechanized Equipment	16 hrs
Day 4	Traffic Control	8 hrs
Day 5	Chain Saws	4 hrs
<u>Week 4</u>		
Day 1-5	Basic Pole Climbing	32 hrs
<u>Week 5</u>		
Days 1-5	Climbing and Working Aloft	32 hrs
<u>Week 6</u>		
Day 1-5	Basic Line Construction	32 hrs
Module 1	OJT SHIPS# 11945	

Module II SHIPS# 11946

<u>Week 1</u>	<u>Subject</u>	
Day 1-5	Metering and Transformers	32 hrs
<u>Week 2</u>		
Day 1-2	Temporary Protective Grounding	8 hrs
Day 2	Sagging to targets and Splicing Transmission Conductors	4 hrs

Day 3-5	Towers, Work Platforms & Hook Ladders	20 hrs
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Week 3

Day 1-5	Basic Underground	32 hrs
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Week 4

Day 1-5	ESOP, Substations & Operating Switches	32 hrs
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Module 2 OJT SHIPS# 11947

Module III SHIPS # 11949

<u>Week 1</u>	<u>Subject</u>	
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Day 1-3	Energized Line Work	16 hrs
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Day 3-5	Underground Switching	16 hrs
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Week 2

Day 1-3	Rigging	20 hrs
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Day 3-5	Transmission Gloving	12 hrs
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Week 3

Day 1-3	Hotstick Training	12 hrs
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Day 3-5	Troubleshooting Basics	20 hrs
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Module 3 OJT SHIPS # 11949

Module IV SHIP# 14663

<u>Week 1</u>	<u>Subject</u>	
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Day 1-5	Leadership Preparation	32 hrs
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<u>Week 2—Distribution Classes</u>	Adv Underground/Troubleshooting Adv Metering/Troubleshooting	32 hrs
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<u>Week 2—Transmission Classes</u>	Transmission Switches	32 hrs
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<u>Week 3—Distribution Classes</u>	Distribution Electronics T & D Substation Switching	32 hrs
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<u>Week 3—Transmission Classes</u>	Transmission Switches Continued	32 hrs
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Network Cablesplicer Accelerated Training Program

Module 100 SHIPS# 014649

<u>Module</u>	<u>Subject</u>	
Module 100A	Basic Electricity	12 hrs
Module 100B	Rigging	32 hrs
Module 101	Overview of Network Underground System	4 hrs
Module 102	Cable Design	8 hrs
Module 103	Network Equipment Identification	8 hrs
Module 104	Network Tools	8 hrs
Module 105	Manhole/Vault Layout	8 hrs
Module 106	Cable Pulling	16 hrs
Module 107	ESOP	32 hrs
Module 108	Cable Identification/Phasing Tools	8 hrs
Module 109	1/C PILC Straight Splice	192 hrs
Module 110	Metering	12 hrs

Module 200 SHIPS# 014650

<u>Module</u>	<u>Subject</u>	
Module 201	Network Protector Fundamentals	64 hrs
Module 202	Energized Secondaries	32 hrs

Module 300 SHIPS# 014651

<u>Module</u>	<u>Subject</u>	
Module 301**	URD Switching/Network Switching	32hrs

****Successful completion of Module 107 test is prerequisite for this course.**

-Module 300 Continued-

Module 302 200 AMP Solid Dielectric Pri Straight Splice 16 hrs

Module 303 200 AMP Elbow 16 hrs

Module **Subject**

Module 304 600 AMP TEE 32 hrs

Module 400 SHIPS# 014652

Module **Subject**

Module 401 Network Protector Testing 32 hrs

Module 500 SHIPS# 014653

Module **Subject**

Module 501 3/C PILC Straight Splice 192 hrs

Module 600 SHIPS# 014654

Module **Subject**

Module 601 3/C PILC Wye Splice 192 hrs

Module 700 SHIPS# 014655

Module **Subject**

Module 701 Primary Transitions & Terminations 64 hrs
Raychem/Patton Cooke &
3M Cold Shrink/PILC in Transformers

Module 800 SHIPS# 014656

Module **Subject**

Module 801 3/C PILC Live End Caps 32 hrs

Substation Electrician & Wireman Accelerated Training Program

Module 1 SHIPS# 017157

<u>Week 1</u>	<u>Subject</u>	
Day 1	Orientation & Safety	4 hrs
Day 2	T & D Overview, Hilti-tool & Cadweld Certification	8 hrs
Day 3	Bobcat, Lull & Forklift Certification	8 hrs
Day 4	Fall Protection, Climber Certification & Rescue	8 hrs
Day 5	Evaluations & Testing	4 hrs

<u>Week 2</u>	<u>Subject</u>	
Day 1	Substation Outdoor Equipment Familiarization & Visual Inspections	4 hrs
Day 2	Outdoor Print Reading & Material Recognition	8 hrs
Day 3	12 KV Feeder Construction	8 hrs
Day 4	Basic Electricity	8 hrs
Day 5	Evaluations & Testing	4 hrs

Module 2 SHIPS # 017159

<u>Week 1</u>	<u>Subject</u>	
Day 1	Outdoor Print Reading	4 hrs
Day 2	Substation Layout, Level Familiarization	8 hrs
Day 3	Manlift Certification	8 hrs
Day 4	Temporary Protective Grounding(Hands-0n)	8 hrs

Day 5 Evaluations & Testing 4 hrs

Module 2 Week 2---continued

<u>Week 2</u>	<u>Subject</u>	
Day 1	Substation Welding Safety, Introduction to To Welding Processes	4 hrs
Day 2	Shielded Metal Arc Welding	8 hrs
Day 3	Oxy-Fuel Cutting	8 hrs
Day 4	Into to Gas Metal Arc Welding & Aluminum Welding	8 hrs
Day 5	Evaluations	4 hrs

Module 3 SHIPS # 017161

<u>Week 1</u>	<u>Subject</u>	
Day 1-4	ESOP Class	28 hrs
Day 5	ESOP Written Examination	4 hrs

<u>Week 2</u>	<u>Subject</u>	
Day 1	Crane Safety, Hand Signals	4 hrs
Day 2	Mobile Crane Rigging	8 hrs
Day 3-4	Moblle Crane Field Training Exercises	16 hrs

Module 4 SHIPS # 017163

<u>Week 1</u>	<u>Subject</u>	
Day 1	Power Circuit Breakers Overview & Arc Quenching	4 hrs
Day 2	Power Circuit Breaker Oil Testing (Oil, Megger, Ductor & Hi-Pot) Preventive Diagnostics	8 hrs
Day 3	Power Transformer Overview, Principles, PT's, CT's, Nameplates, TTR.	8 hrs

Day 4	Tap Changers, Overview and By-Passing of Regulators	8 hrs
Day 5	Capacitor Banks, Evaluations & Testing	4 hrs

Module 5 SHIPS # 017165

<u>Week 1</u>	<u>Subject</u>	
Day 1	Print Reading for Pulling Switchboard Cable	4 hrs
Day 2	Wiring & Switch house Safety & Switching	8 hrs
Day 3	Switching Continued, Wiring CTs and PTs	8 hrs
Day 4	Wiring Batteries & SCADA Cabinets	8 hrs
Day 5	Evaluations & Testing	4 hrs

DOC Training Program

Module I-

This module of training is a basic level course designed for new operators. Course content includes:

- Introductions to Substations
- Substation High Side Components
- Substation Power Transformers
- Substation Power Regulators
- Substation Power Circuit Breakers
- Substation Capacitors
- Substation Batteries
- Substation Station Service

Module II

This is an additional basic level course designed to introduce Substation Switching Concepts to new operators who have previously completed Module I training. Module II course content includes:

- Sequenced Bypass Switch Operation
- Substation Manual Switching with focus on ESOP Issues
- Substation Operating Procedures

Manually Switching Substation Components

Module III (Currently under development)

This is an advance course suitable for operators with more than 2 years of DOC experience. Course content includes:

- Review of Module I
- Review of alarms, understanding and interpretation of alarms
- Single Line Diagram overview
- Protective Relay Overview—Fault types and targets.
- Review of Line Dropping Switch
- Review of Line Splitting Switch
- Review of Load Dropping/Splitting Switch
- SEL 251 trip coil failures, identification and testing

SCADA Review (Currently under development)

Designed as an advanced course for operators who have completed Module I & II courses. Course content will include:

- Refresher of the use of SCADA
- Review of SCADA Tools

CYME Review (Currently under development)

This is an advanced course for senior operators. Course content will include:

- Review of CYME Computer Applications

Local Operations Lineman Training Program

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| Module 1 | #016879
This 2 week module consists of an overview of all substation equipment to include DOC switching and single line diagrams. |
| Module 2 | #016880
The content of this 1 week class includes transformer troubleshooting, dry cell transformers, risk services, overhead troubleshooting, and 4 hours of ESOP review. |
| Module 3 | #016881
This module covers Advanced Metering and computer applications including ARMS, DOES and maps training. |
| Module 4 | #016882
Module 4 covers Distribution Automation and Advanced Underground to include underground switching procedures and troubleshooting techniques. |

All classes held at the Training Center begin at noon on the first day of class with the exception of those that begin at 8 AM as noted in this document.

Crew Methods and Training Key Contacts

Mike Neighbors	Manager-Crew Methods and Training	8-255-6041 or 205-664-6041
Priscilla Martin	Training Center Assistant	8-255-6042 or 205-664-6042
John Thacker	Supervisor-Transmission Lines & Subs	8-255-6334 or 205-664-6334
Roger Marcus	Supervisor-Distribution (OH/UG) & Network	8-255-6365 or 205-664-6365
Mike Evans	EIT Coordinator	8-255-6048 or 205-664-6048
Donna Handley	ALTP Coordinator	8-255-6396 or 205-664-6396
Tim Gillespie	E & W Training Program	8-255-6148 or 205-664-6148
Lisa Gould	Training Center and EIT Clerk	8-255-6145 or 205-664-6145
Jim Smiley	Training Development	8-255-6273 or 205-664-6273
Sid McCarver	Tool Coordinator	8-255-6261 or 205-664-6261

Distribution Instructors

Mike Carter
Leslie Eiland
Ricky Jackson
Gerald Jones
Albert McCurdy
Ronnie Mitchell
Warner Patterson
Gary Sallas
Ricky Sanford
Jay Shockley
Gerald Taylor
David Tillman

Substation Instructors

Phillip Battles
David Brown
Sam Mims
Phillip Smart
Harry Strength

Transmission Instructors

Billy Birchfield
Jamie Garrison
Maurice Sealey
Jason Smith
Ricky Young