

Shermco industries



Training Catalog



2016 - 2017

One Line. One Company.

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from Shermco

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Online registration now available
at:
www.shermco.com/training

Meeting Our Changing Workforce Demands

by James White, Training Director

Back in the day, when I was young and not old and decrepit, the U.S. military had a draft. Although many people were given waivers, I was not and found myself with a draft number of 13. I knew I was certain to be drafted, and decided that four years in the Air Force would be better than two years in the Army. I didn't realize at the time how long four years really was, but that's another story.

One of the side benefits to the draft was that many of the inductees were given basic skills training in such areas as use of hand tools, operation of complex equipment systems and specialized training. When these same people returned to civilian life they brought their skills with them and industry had a steady supply of well-trained, motivated workers to draw on. With the end of the Vietnam War, the voluntary draft was instituted, and the number of people entering military service dropped off dramatically. No one liked the draft, but skilled workers started to become a bit harder to come by.

Fast forward 50 years and those skilled workers from the war era are leaving the workforce. A paper presented at NETA's PowerTest Conference titled, 2009 Maintenance Catch 22: The Aging Workforce meets the Skills Shortage[1] showed that approximately 50% of the work force will be eligible to retire in 10 years! If that doesn't scare you, nothing will. Without a constant stream of trained and skilled workers entering the work force annually, the attrition from retirements has to be made up somewhere. Utilities used to be able to conduct on the job training for skilled workers, but now they contract out a lot of their work. No one can afford to have unskilled workers in an OJT program for three to six years. Technical schools and colleges are helping, but their annual output is pretty low. One of the best, Texas State Technical College in Waco, Texas turns out about 30 to 40 per year. 30 to 40. That's a drop in the bucket. So, what options are there for employers needing workers skilled in electrical testing and maintenance?

Hiring as many ex-military as possible. We do that at Shermco, as well as graduates of TSTC. The balance has to be trained with a combination of OJT and hands-on technical skills training.

Technicians are technicians and not engineers, not because they are slow or stupid, but because they don't learn by sitting in a classroom eight hours a day, five days a week. Most of us learn by doing. That's where hands-on training is important. Our classes, unless they specifically state they are seminar only, have a significant portion devoted to hands-on sessions. This includes our electrical safety training. That hands-on portion can be from 20% to 50%, depending on the class.

Shermco has a need to effectively train our field service technicians; that's where the company makes its money. Because of that, the training we offer is always up-to-date and relevant. We teach what we do – every day.



Jim White is the director of training for Shermco Industries. Jim is also a member of the NFPA Technical Committee for NFPA 70E "Standard for Electrical Safety in the Workplace" and NFPA 70E "Recommended Practice for Electrical Equipment Maintenance" and a member of the ASTM F18 Committee.

Service Centers

Shermco Industries is the leader in electrical power systems maintenance, repair, testing and training. Shermco services include electrical systems maintenance, electric motor repair, electric motor remanufacturing, wind generator repair and maintenance, circuit breaker and switchgear repair, circuit breaker and switchgear retrofit, technical skills training, electrical safety training and more.

From high-voltage power generators to the smallest switches and circuit breakers, Shermco is the name you trust to keep operations humming. Whether conducting repairs onsite or at our facility, our NETA-certified electrical technicians are ready to serve you in a timely manner.

Since 1974, we have kept our customers operating more efficiently and safely. We'll keep your electrical components running with first-class maintenance procedures and quality parts. Allow our seasoned training teams to show your employees how to avoid mechanical breakdowns and keep your electrical equipment online. We'll save you money with smoother operations.



Austin
1705 Hur Industrial Blvd.
Cedar Park, TX 78613
Phone: 512.267.4800

Calgary
3434 25th St NE,
Calgary, AB
T1Y 6C1
Phone: 403.769.9300

Cedar Rapids
796 11th Street
Marion, IA 52302
Phone: 319.377.3377

Chicago
112 Industrial Pkwy
Minooka, IL 60447
Phone: 815.467.5577

Columbus
4383 Professional Parkway
Groveport, Ohio 43125
Phone: 614.836.8556

Dallas
2425 East Pioneer Dr.
Irving, TX 75061
Phone: 972.793.5523

Des Moines
2100 Dixon St., Suite A
Des Moines, IA 50316
Phone: 515.265.3377

Edmonton
3731 98 Street,
Edmonton, AB
T6E 5N2
Phone: 780.436.8831

Gulf Coast Area
33002 FM 2004
Angleton, TX 77515
Phone: 979.848.1406

4240 South Dr.
Houston, TX 77053
Phone: 281.835.3633

2901 Turtle Creek Drive, Suite 412
Port Arthur, TX 77642
Phone: 409.853.4316

Minneapolis
998 E. Berwood Ave.
St. Paul, MN 55110
Phone: 651.484.5533

Omaha
4670 G Street
Omaha, NE 68117
Phone: 515.265.3377

Regina
1033 Kearns Cr.
Regina, SK
S4P 3B2
Phone: 306.949.8131
Toll Free: 877.949.8131

San Antonio
12000 Network Blvd.
Building D, Suite 410
San Antonio, TX 78249
Phone: 512.267.4800

Saskatoon
851 58th Street East
Saskatoon, SK
S7K 6X5
Phone: 306.955.8131
Toll Free: 877.955.8131

Sweetwater
1301 Hailey St.
Sweetwater, TX 79556
Phone: 325.236.9900

Tulsa
4510 South 86th East Ave.
Tulsa, OK 74145
Phone: 918.234.2300
Fax: 918.234.2306

Winnipeg
1375 Church Avenue
Winnipeg, MB
R2X 2T7
Phone: 204.925.4022

And at other locations across North America



Onsite Training

Shermco has fully developed training programs that we can bring to you. Most courses are available at your job site as well as in open-enrollment classes. Many classes can be customized to customer-specific equipment and devices. Our onsite training programs provide the most effective hands-on training experience at very cost-efficient rates. Contact us if we can provide training programs at your job site.

Some additional onsite courses:

Circuit Breaker Operating Mechanism Rebuilding

This is an advanced course intended for experienced technicians. Whereas the Low and Medium-Voltage Circuit Breaker Maintenance course covers maintenance areas of these breakers, this course concentrates on the construction, operation, and rebuilding of the operating mechanism. Many common circuit breaker manufacturers are covered including ABB/ITE HK and K-Line, Westinghouse/Cutler-Hammer DSL, DHP and VCP, GE AK/AKR and Power-Vac. Attendees will disassemble one of the above-listed breaker operating mechanisms, repair and/or replace components as necessary and re-assemble and adjust for proper operation.

Arc Flash Seminar

This program covers the FedOSHA regulations which require arc flash protective PPE and clothing, the NFPA 70E and statistical data from the CDC/NIOSH on electrical injuries. Also covered is the interpretation of arc flash labels applied to equipment, including approach distances and boundaries. This program is designed to ensure employees are aware of the hazards, reduce the risk of working on or near energized equipment, as well as come into compliance with OSHA regulations.

Systems Operations and Safety for Wind Generation Sites

A practical training program designed to enhance attendees understanding of the types of equipment located at the wind generation site, including substations, the hazards associated with working in and around this equipment, how to use and interpret single-line diagrams and the maintenance needed by common types of electrical power system equipment. The Fed OSHA electrical safety regulations are covered, including 29CFR1910.331 - .335 and selected parts of 29CFR1910.269 to meet the safety training requirements for electrical workers. NERC has a requirement for training on protective relays and substation equipment, which this course covers, as well.

Electrical Safety for Operators

This program begins with an overview of electrical hazards, their causes and potential for injuries or fatalities. The course progresses through various Lockout/Tagout standards (29CFR1910.147 and .333) and reviews the pertinent portions of the Electrical Safety-Related Work Practices regulation as it applies to non-electrical personnel. Specifics are provided on operating medium-voltage air-break switches and their associated hazards.

to book an on-site class

Call 888-SHERMCO

WHO DOES YOUR TRAINING?

As a NETA-certified test company and an EASA certified motor rebuild facility, Shermco Industries has the expertise to show you how it's done the right way—the safe way. Our instructors include NETA-certified technicians, industry-leading engineers and other qualified personnel who are current in the field they are teaching.

If quality of training is important to you and your work practices, go with professionals. It takes resources, manpower and calibrated test equipment to both teach and perform the actual work. We are here for your needs in training, certification, licensing, insurance, bonding and more. We are here for your safety.

Shermco is active on many safety / technical committees and working groups including IEEE, AWEA, NETA and EASA. Additionally, Shermco has several members on both the USA NFPA 70E and the Canadian CSA Z462 electrical safety standards committees as well as well as the NFPA 70B and CSA Z463 committees that manage electrical equipment maintenance recommended practices. Shermco representatives are also active on the NFPA 70 Code Making Panels 5 and 13 and ASTM F-18 "Electrical Protective Equipment for Workers."

This personal participation ensures Shermco's training programs are up to date and accurate. You can't afford mistakes and misinformation; go with team Shermco!

CEUs Available

Why Louisiana Tech University? LTU is a fully accredited university by the Southern Association of Colleges and Schools (SACS) and follows IACET guidelines for issuing CEUs.

There are many organizations that certify courses for CEUs, but Shermco wanted its training certified by an organization of the highest quality that also understands technical skills and safety training. This provides you the assurance that Shermco's courses meet the highest standards of quality and are focused on industry needs. Shermco's hands-on technical skills training courses will keep your electrical power system up and running. In addition, onsite training presentations are customized at no extra charge to meet your specific equipment and procedures requirements.



Verifying Meter Operation for a 208 V MCC

 Online registration now available at: www.shermco.com/training

NFPA 70E Annex O

A great majority of electrical faults are of the phase-to-ground type.

High resistance grounding will insert an impedance in the ground return path and will limit the fault current, leaving insufficient fault energy and thereby helping reduce the arc flash hazard.

I-GARD HRG PRODUCT FLOW

I-Gard is pleased to offer nine levels of high-resistance grounding protection to meet your specific requirements. If your specific requirements are not covered by one of the solutions below, then our in-house team will customize a solution that matches your specific needs and budget.

STANDARD HRG Offerings	Level 1 STOPLIGHT Inexpensive, simple HRG that provides visual indication of ground fault.	Level 3 SLEUTH Self-contained HRG system with integral pulsing circuit to aid in locating fault.	Level 7 SENTINEL Advanced HRG system that protects up to 50 feeders with critical process protection even under second ground fault.
	Level 2 STOPLIGHT-M Stoplight with an integral monitoring relay that continuously monitors the integrity of the grounding circuit.	Level 4 SLEUTH-M Sleuth that provides all process continuity and fault location properties with the added monitoring relay that continuously monitors the integrity of the grounding circuit.	Level 8 SENTINEL-M Sentinel with an integral relay that continuously monitors the integrity of the grounding circuit.
	Level 5 GEMINI Fail-safe HRG with redundant resistor path and full-time monitoring relay.	Level 6 GEMINI-PS Fail-safe HRG with integral pulsing, redundant resistor path and full-time monitoring.	Level 9 GARDIAN Combines the recognized safety and reliability benefits of HRG with the incident energy reduction capabilities of arc mitigation.
PREMIUM Exclusive to I-Gard	MONITORING	FAIL-SAFE	

	Competitors Standard HRG	I-Gard Gemini Fail-Safe HRG	I-Gard Sentinel SMART HRG	I-Gard Gardian Total Protection
Process continuity under ground fault condition	✓	✓	✓	✓
Pulsing to find faults faster	✓	✓	✓	✓
Circuit monitoring for safety and reliability	✓	✓	✓	✓
Fail-safe circuit for increased reliability		✓		✓
Feeder indication for faster and safer fault location			✓	✓
Critical process continuity under second ground fault condition			✓	✓
Arc Flash Mitigation for safety				✓

If you like your HRG supplier, You can keep your HRG supplier, But Why would you?

True or False of Electrical Safety by Design

Statement	True	False
NFPA 70E Annex O references several technologies for arc flash protection	True	
NFPA 70E notes that HRG is a technology that reduces the frequency of an arc flash occurring	True	
HRG reduces the likelihood of an arc flash occurring by 95%	True	
Other technologies can reduce the frequency just as effectively as HRG		False
PPE reduces the magnitude of an arc flash		False
Insurance companies recommend High Resistance Grounding Systems	True	
HRG technology limits energy levels		False
HRG can be combined with optical arc detection to lower frequency and impact (Guardian HRG)	True	
Arc quenching with current dampening can lower incident energy to zero hazard levels. (Shield ADS)	True	
Insurance companies recommend High Resistance Grounding Systems	True	



GARDIAN HRG



SHIELD ADS

Circuit Breaker Operation, Controls and Troubleshooting

About this course...

Reliable and safe operation of a power system requires a thorough knowledge of circuit breaker operations, testing and failure modes. This course is designed to provide the knowledge and skills to perform those tasks as well as minor maintenance and repair. Read and understand the applicable electrical drawings and proper sequential operation of a variety of low and medium voltage circuit breakers and learn to evaluate contracted work for major maintenance, repair and overhaul of equipment.

Who should attend...

Technicians, electricians, first line supervisors, and others responsible for maintaining operational integrity of plant power systems and performing basic testing, maintenance, or repair of low and medium-voltage circuit breakers. Intended for those whose primary objective is return-to-service, as well as minor maintenance and repair.

Prerequisites...

Students should have basic electrical training, some field experience and basic knowledge of switchgear is highly recommended.

The Details...

Course Length 4.5 days (36 contact hours)*
Tuition \$1,760
CEUs. Available

Each open-enrollment student will receive a course text and a copy of the current ANSI/NETA MTS (copy of NFPA 70E available at an additional cost).

* If hosted at Shermco's training facility.

You'll learn...

- How to read and interpret electrical drawings related to circuit breaker operation and their interaction with power systems
- How to use electrical drawings to troubleshoot and correct problems
- Learn sequential electrical operation of a variety of solenoid and stored energy breakers
- Electrical and mechanical features, functions and operation of circuit breakers
- Diagnose problems, determine level of corrective action required, and learn who should perform corrective actions
- Routine level maintenance and testing of low- and medium-voltage circuit breakers in accordance with ANSI/NETA MTS Standard for Maintenance Testing Specifications
- Theory and operation of test equipment
- Insulation and contact resistance testing
- High potential and vacuum bottle testing
- Primary and secondary injection testing
- Read and understand time/current curves
- Functions, features, maintenance and testing of breaker cells and auxiliary systems
- Evaluate contracted work, understand and correctly interpret repair orders, maintenance work and test reports
- A hands on training program (~50% when held at Shermco facility, Irving, TX and other select locations) augmented with round table discussions





Low and Medium-Voltage Circuit Breaker Maintenance and Testing

About this course...

Circuit breakers are the most critical components of a power system and the facility owner or manager must make sure they are operating properly to maintain both reliability and safety. Understanding how they work, how they should be operated, how they are tested and how to interpret those test results are necessary even if the repairs and overhauls are performed by a contractor. This course will provide those details along with basic inspection and repair procedures.

Who should attend...

Technicians, electricians, first line supervisors, and others responsible for full range maintenance, testing and repair of all types of low- and medium-voltage circuit breakers. Intended for those whose intent is to provide service and support of their circuit breakers at a level that would normally be performed by a commercial repair facility, as well as those who may need a deeper understanding of circuit breakers in order to make repairs as needed until a spare breaker can be installed.

Prerequisites...

Students should have basic electrical training, some field experience and basic knowledge of switchgear is highly recommended.

The Details...

Course Length 4.5 days (36 contact hours)
Tuition \$1,760
CEUs. Available

Each open-enrollment student will receive a course text and a copy of the current ANSI/NETA MTS (copy of NFPA 70E available at an additional cost).

You'll learn...

- Construction and operation of a variety of molded-case, insulated case and low-voltage power (draw-out) circuit breakers
- Construction and operation of common medium-voltage metal-clad switchgear and draw-out circuit breakers rated from 2.3 kV through 38 kV
- Correctly identify circuit breaker ratings and limitations and interpret time-current curves
- Identify the primary causes of failure and how to correct them
- Disassemble a low-voltage and medium-voltage circuit breaker, and perform required inspection, maintenance and adjustments; then reassemble
- How to properly perform and evaluate tests including contact resistance, insulation resistance, AC and DC overpotential, timing, vacuum bottle integrity, primary and secondary injection
- Maintenance requirements and procedures in accordance with NETA, ANSI, NEMA and NFPA standards
- Cubicle maintenance and testing, racking mechanisms and control devices
- Interaction between circuit breakers and cubicles, and protective devices and control schemes
- Safety aspects of circuit breaker racking, handling and operation
- Hands-on (~50%) training program augmented with round-table discussions



Industrial Substation Maintenance

About this course...

Many industrial customers choose to perform general testing and maintenance on incoming utility substations as well as downstream substations within the plant perimeters. Both technical competence and proper safety practices are critical to these procedures. This session provides the information and hands on training to test and maintain most of the major components of the substation except for the main transformer and protective relays.

Who should attend...

Technicians, electricians, first line supervisors, and others responsible for full range maintenance, testing or repair of all types of medium-voltage circuit breakers, batteries, and ground systems.

Prerequisites...

Students should have basic electrical training, some field experience and basic knowledge of switchgear is highly recommended.

The Details...

Course Length 3.5 days (28 contact hours)
Tuition \$1,420
CEUs. Available

Each open-enrollment student will receive a course text.

You'll learn...

- Theory, construction and operation of common types of medium-voltage metal-enclosed switchgear and circuit breakers, including air-magnetic and vacuum
- How to interpret ratings and nameplate data and identify breaker ratings and limitations
- Understand how medium-voltage circuit breakers operate, and know the primary causes of failure
- Safety requirements when operating, racking, testing or maintaining circuit breakers
- Required testing and maintenance of medium-voltage metal-enclosed circuit breakers and switchgear in accordance with ANSI/NETA MTS
- Tests commonly performed on circuit breakers and their associated switchgear
- How to maintain station batteries in accordance with ANSI/NETA MTS
- Ground testing theory and interpreting test results in accordance with ANSI/ NETA MTS

Hands-on lab sessions:

- Racking circuit breakers
- Perform and evaluate common circuit breaker electrical tests including insulation resistance, dc overpotential, contact resistance a, insulation power factor and timing utilizing equipment from a variety of manufacturers
- Perform routine maintenance on medium voltage air and vacuum circuit breakers
- Test and evaluate battery systems
- Perform fall-of-potential ground test and interpret results



Industrial Plant Electrical Maintenance

About this course...

This course covers what maintenance personnel and managers should know about maintenance and how it affects plant reliability. The maintenance and testing required for common plant devices, including transformers, protective relays, circuit breakers and cubicle maintenance, motors, and motor controls is covered in detail. Based on the NFPA 70E and ANSI/NETA Maintenance Testing Specifications, this intensive training program provides the latest information on maintaining and testing electrical power system equipment, including what to do, when to do it and interpreting test results.

Who should attend...

Electricians, technicians, supervisors, and plant engineers who perform the maintenance, testing and evaluation of common types of circuit breakers, transformers, motors, and motor controls found in industrial facilities.

Prerequisites...

Students should have basic electrical training, some field experience is recommended but not mandatory.

The Details...

- Course Length 4 days (32 contact hours)
- Tuition \$1,420
- CEUs. Available

Each open-enrollment student will receive a course text and a copy of the current ANSI/NETA MTS.

You'll learn...

- Low and medium voltage circuit breakers
- Motor maintenance
- Switches and disconnects
- Transformers maintenance and testing
- How to interpret results and trend analysis
- How to improve plant reliability through common-sense approaches to operation and maintenance
- How to lower operation and maintenance cost
- How maintenance planning can reduce unscheduled downtime
- Hands-on (~40%) training program augmented with round-table discussions



Online registration now available at:
www.shermco.com/training



Substation Maintenance (Transformers and Relays)

About this course...

Whether it is a generator step-up or a distribution substation, it is the transformer that does all the work. This course is designed to introduce the design and operation of these large three phase transformers including how to test and maintain them for maximum reliability. It will also include how to test substation protective relays, how to interpret the results of those tests and how to properly maintain the relay components.

Who should attend...

Managers and technicians responsible for testing and maintaining electrical substations.

Prerequisites...

Students should have basic electrical training, some field experience and basic knowledge of switchgear is highly recommended.

The Details...

Course Length 4.5 days (36 contact hours)
Tuition \$1,760
CEUs. Available

Each open-enrollment student will receive a course text and a copy of the current ANSI/NETA MTS.

You'll learn...

- Theory, construction and operation of three-phase power transformers
- How to interpret ratings and nameplate data
- Required testing and maintenance of dry-type and liquid-insulated power transformers in accordance with ANSI/NETA MTS
- How to perform electrical testing of power transformers and interpret test results
- Theory and operation of protective relays, including overcurrent, over/undervoltage and differential
- What tests and maintenance are typically performed on the protective relays in accordance with ANSI/NETA MTS
- How to interpret the test results
- How to download and distribute event files from Schweitzer (SEL)
- Hands-on (~40%) training program augmented with round-table discussions

Online registration now available at:
www.shermco.com/training



Power Generation Basics

About this course...

This course is designed for technicians and supervisors involved with the operation and maintenance of electrical power generators. In this class, students will begin with the basics of generators and prime movers including a review of electromagnetic induction. The course progresses through the theory and function of grounding systems and the switchgear needed to transfer electric power to the end user. Speed control, voltage regulation, parallel operation and load sharing are also explained. Recommended troubleshooting, maintenance and testing practices are covered using real-world examples of the effects of both proper and improper maintenance.

Who should attend...

Managers, technicians, and safety personnel involved in the operation and maintenance of generators and associated equipment.

Prerequisites...

Some field experience is recommended but not mandatory.

The Details...

Course Length 2.5 days (20 contact hours)
Tuition \$830
CEUs. Available

Each open-enrollment student will receive a course text.

You'll learn...

- Generators and prime movers
- Protection and transfer of electrical power
- Generator and engine controls
- Auxillary systems
- Tests commonly performed on circuit breakers and their associated switchgear
- Troubleshooting and maintenance of power generation systems
- Be able to identify distribution equipment associated with generator systems
- Be able to discuss guidelines for installation, operation, and maintenance

Online registration now available at:
www.shermco.com/training



Splicing and Termination of Medium-Voltage Cables

About this course...

Medium voltage cables (5-46kV) are utilized in industrial and utility power distribution systems as well as for connections to electric machinery. Due to the difficulty in insulating for these voltages as well as controlling partial discharge, the splicing materials, kits, components and techniques must be used to assure safe and reliable operations. Different types of splicing techniques are reviewed as well as the electrical tests needed to assure expected performance values.

You'll learn...

- Basic electrical principles and construction of common types of medium-voltage cables
- How to properly prepare cables for splicing
- Proper techniques for hand-taped splices, heat-shrink and cold-shrink splices and terminations
- Perform electrical tests to verify the integrity of the splices and terminations made during lab sessions
- Interpret electrical test results to evaluate the cable
- Tools required for cable splicing and terminations

Who should attend...

Field and plant maintenance technicians and others who perform splicing and termination of medium-voltage solid dielectric cables

Prerequisites...

Students should have basic electrical training, some field experience and basic knowledge of medium voltage power systems is highly recommended.

The Details...

Course Length 4.5 days (36 contact hours)
 Tuition \$2,150
 CEUs. Available

Each student will receive course text.

Online registration now available at:
www.shermco.com/training

Canadian Training Courses

Arc Flash Protection and Electrical System Safety: QEW

About this course...

Let us teach your employees to identify electrical hazards; assess risks and implement risk control according to a hierarchy of methods. This two-day course exceeds the Occupational Health and Safety Regulations. In addition, we provide hands-on training, which includes the operation and safety of power systems equipment in our 53' mobile training trailer.

This course is intended for technicians, field-service personnel, electricians, supervisors and engineers who supervise employees who perform operation or maintenance work on electric devices and equipment with voltage ratings from 480 / 600 / 750 volts and greater.

Lab Time & Prerequisites: This course requires basic electricity knowledge.

Course Length 2 days (16 contact hours)
Tuition \$1,195.00 CDN
CEUs. Available

Each open-enrollment student will receive a course text
Prices subject to change January 1, 2017.

Arc Flash Protection and Electrical Safety: Qualified Electrical Worker

Regina, SK

2/17 • 3/22 • 4/19 • 5/17
2016 6/14 • 7/19 • 8/16 • 9/20
10/18 • 11/15

Saskatoon, SK

2/23 • 3/29 • 4/26 • 5/24
2016 6/21 • 7/26 • 8/23 • 9/27
10/25 • 11/22

Calgary, AB

2016 3/1 • 6/7 • 9/13

Edmonton, AB

2016 4/12 • 8/9

Winnipeg, MB

2016 3/8 • 7/12 • 10/4

Qualified Electrical Worker - Refresher

About this course...

This one-day course is designed for those who have completed the Arc Flash Protection and Electrical System Safety: Qualified Electrical Worker training course and require the refresher course for updates on the current regulations and standards.

This course is intended for technicians, field-service personnel, electricians, supervisors and engineers who supervise employees who perform operation or maintenance work on electric devices and equipment with voltage ratings from 480 / 600 / 750 volts and greater.

Lab Time & Prerequisites: This course requires previous completion of the QEW training course. This course is seminar-based with no hands-on labs.

Course Length 1 day (8 contact hours)
Tuition \$425.00 CDN
CEUs. Available

Each open-enrollment student will receive a course text.
Prices subject to change January 1, 2017.

Qualified Electrical Worker - Refresher

Regina, SK

2016 1/21 • 3/24 • 5/19 • 7/21 • 9/22
11/17

Saskatoon, SK

2016 1/28 • 2/25 • 6/23 • 8/25 10/27

Electrical Safety for Non-Electrical Workers

About this course...

This 8-hour course concentrates on educating unqualified personnel on how to understand electrical hazards, and the risks associated with energized equipment. This course will teach your employees to assess the hazards, control exposure and reduce the risks associated.

This course is intended for technicians, machine operators, supervisors, field engineers, plant engineers and others who work around electrical systems.

Lab Time & Prerequisites: This course is seminar-based with no hands-on labs.

Course Length 1 day (8 contact hours)
Tuition \$425.00 CDN
CEUs. Available

Each open-enrollment student will receive a course text
Prices subject to change January 1, 2017.

Electrical Safety for Non-Electrical Workers

Regina, SK

2016 4/21 • 6/16 • 8/18 • 10/20

Saskatoon, SK

2016 1/28 • 5/26 • 7/28 • 9/29
11/24

Calgary, AB

2016 3/3

Substation Maintenance and Testing

About this course...

This 8-hour course concentrates on educating unqualified personnel on how to understand electrical hazards, and the risks associated with energized equipment. This course will teach your employees to assess the hazards, control exposure and reduce the risks associated.

This course is intended for technicians, machine operators, supervisors, field engineers, plant engineers and others who work around electrical systems.

Lab Time & Prerequisites: This course is seminar-based with no hands-on labs.

Course Length 1 day (8 contact hours)
Tuition Please Contact
CEUs. Available

Each open-enrollment student will receive a course text.

For more information on our Canadian training...



Please contact:
Jarret Solberg or Mike Doherty
888-SHERMCO
canadiantraining@shermco.com

Canadian Training Courses

Electrical Maintenance Planning

About this course...

Participants will understand the maintenance and testing requirements for key components in an industrial electrical system. They will learn how to determine a maintenance strategy for electrical equipment in order to minimize unscheduled outages by improving equipment reliability and keeping your employees safe.

This course is intended for managers, technicians, supervisors, field engineers, plant engineers and others who determine the scope and schedule the maintenance, testing and evaluations on industrial switchgear, distribution cables, protection systems, circuit breakers, ground systems, battery banks and transformers.

Lab Time & Prerequisites: Hands-on training (\pm 20%) program augmented with round-table discussions. The student should have basic knowledge of AC/DC electricity.

Course Length 1 day (8 contact hours)

Tuition \$695.00 CDN

CEUs. Available

Each open-enrollment student will receive a course text

Prices subject to change January 1, 2017.

Circuit Breaker Maintenance and Testing

About this course...

Students will learn the electrical and electromechanical operating and control systems of a wide variety of circuit breakers. They will review safety aspects and learn how to inspect, test and perform preventative maintenance. All maintenance inspections and tests are done in accordance with NETA, ANSI and NEMA standards.

This course is intended for Field and shop technicians, circuit breaker rebuilders, supervisors and others responsible for the testing and maintenance industrial circuit breakers.

Lab Time & Prerequisites: Hands-on training (\pm 20%) program augmented with video and round-table discussions. Attendees should have basic electrical training. Some field experience is recommended, but not mandatory.

Course Length 2 days (16 contact hours)

Tuition Please Contact

CEUs. Available

Each open-enrollment student will receive a course text

Battery Bank Testing

About this course...

This training course will introduce students to stationary batteries and the maintenance and testing they require. The student will learn to identify various types of batteries, their construction and applications. The student will define safety and hazards related to batteries and testing. We will look at various failure modes related to batteries and how to identify each failure. Tests and inspections procedures will be explained along with the interpretation of test results.

This hands-on course is intended for technicians, field-service personnel, electricians, supervisors and engineers who supervise employees who perform inspections or maintenance work on battery banks.

Lab Time & Prerequisites: Hands-on training (\pm 20%) program augmented with video and round-table discussions. Attendees should have basic electrical training. Some field experience is also recommended, but not mandatory.

Course Length 2 days (16 contact hours)
Tuition \$1,195.00
CEUs. Available

Each open-enrollment student will receive a course text
Prices subject to change January 1, 2017.

Basic Protective Relay Training

About this course...

Our goal is to improve safety in the workplace by personnel how to understand site specific functions and applications of protective relaying. We will teach employees how to read and interpret electrical drawings related to relay operation and power system interaction, specific to an industrial working environment. The hands-on lab will provide an opportunity to build their own control circuit using familiar relays.

This hands-on course is intended for electricians, technicians and engineers responsible for acknowledging and interpreting solid-state protective relay alarms and notifications.

Lab Time & Prerequisites: Hands-on training (\pm 20%) program augmented with round-table discussions. The student should have basic knowledge of AC/DC electricity.

Course Length 2 days (16 contact hours)
Tuition \$1,195.00 CDN
CEUs. Available

Each open-enrollment student will receive a course text
Prices subject to change January 1, 2017.

For more information on our Canadian training...



Please contact:
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Maintenance

Industrial Plant Electrical Maintenance

Dallas, TX

2016 6/7 • 11/8

2017 6/6 • 11/7

Low- to Medium-Voltage Circuit Breaker Maintenance and Testing

Dallas, TX

2016 2/15 • 5/2 • 8/15 • 11/14

2017 2/13 • 5/1 • 8/14 • 11/13

Industrial Substation Maintenance

Dallas, TX

2016 4/4 • 7/25 • 12/12

2017 4/4 • 7/25 • 12/12

Circuit Breaker Operation, Controls & Troubleshooting

Dallas, TX

2016 1/25 • 4/25 • 7/11 • 10/17

2017 1/23 • 4/24 • 7/10 • 10/16

Substation Maintenance (Transformers and Relays)

Dallas, TX

2016 5/9 • 8/22 • 12/5

2017 5/8 • 8/21 • 12/11

Power Generation Basics

Austin, TX

2016 1/11 • 4/11 • 7/11 • 10/10

2017 1/10 • 4/11 • 7/11 • 10/10

Dallas, TX

2016 2/2 • 5/3 • 8/16 • 11/8

2017 2/1 • 5/3 • 8/16 • 11/8

Sweetwater, TX

2016 1/19 • 3/29 • 7/12 • 10/11

2017 1/18 • 3/28 • 7/11 • 10/10

Tulsa, OK

2016 3/8 • 6/7 • 9/13 • 12/13

2017 3/7 • 6/6 • 9/12 • 11/13

Splicing and Termination of Medium-Voltage Cables

Dallas, TX

2016 3/28 • 8/8 • 12/5

2017 3/27 • 8/7 • 12/4

Canadian Courses

Arc Flash Protection and Electrical Safety: Qualified Electrical Worker

Regina, SK

2/17 • 3/22 • 4/19 • 5/17

2016 6/14 • 7/19 • 8/16 • 9/20

10/18 • 11/15

Saskatoon, SK

2/23 • 3/29 • 4/26 • 5/24

2016 6/21 • 7/26 • 8/23 • 9/27

10/25 • 11/22

Calgary, AB

2016 3/1 • 6/7 • 9/13

Edmonton, AB

2016 4/12 • 8/9

Winnipeg, MB

2016 3/8 • 7/12 • 10/4

Qualified Electrical Worker - Refresher

Regina, SK

2016 1/21 • 3/24 • 5/19 • 7/21 • 9/22
11/17

Saskatoon, SK

2016 1/28 • 2/25 • 6/23 • 8/25
10/27

Electrical Safety for Non-Electrical Workers

Regina, SK

2016 4/21 • 6/16 • 8/18 • 10/20

Saskatoon, SK

2016 1/28 • 5/26 • 7/28 • 9/29
11/24

Calgary, AB

2016 3/3

General Technical

Troubleshooting and Electrical Print Reading

Austin, TX

2016 5/10 • 11/8

2017 5/9 • 11/7

Dallas, TX

2016 4/5 • 10/11

2017 4/4 • 10/10

Sweetwater, TX

2016 1/5 • 7/12

2017 1/4 • 7/11

Tulsa, OK

2016 6/21 • 12/6

2017 6/20 • 12/5

Basic Electrical Fundamentals

Dallas, TX

2016 1/4 • 3/7 • 6/6 • 9/5

2017 1/9 • 3/6 • 6/5 • 9/11

National Electrical Code

Austin, TX

2016 3/1 • 9/13

2017 3/1 • 9/12

Dallas, TX

2016 2/9 • 8/2

2017 2/7 • 8/1

Sweetwater, TX

2016 5/17 • 11/20

2017 5/16 • 11/21

Tulsa, OK

2016 4/5 • 10/11

2017 4/4 • 11/8

Motor Maintenance and Testing

Dallas, TX

2016 2/2 • 5/10 • 8/16 • 11/15

2017 2/1 • 5/9 • 8/15 • 11/14

St. Paul, MN

2016 3/8 • 6/14 • 9/6 • 12/6

2017 3/7 • 6/13 • 9/6 • 12/5

Basic Electrical Technical Skills

Dallas, TX

2016 1/6 • 3/9 • 6/8 • 9/7

2017 1/11 • 3/8 • 6/7 • 9/13

Safety

Electrical Safety for Qualified Electrical Workers

Austin, TX

2016 1/5 • 4/5 • 7/5 • 10/11

2017 1/4 • 4/4 • 7/11 • 10/14

Dallas, TX

2016 1/12 • 2/9 • 3/15 • 4/12 • 5/17
6/21 • 7/19 • 8/16 • 9/13
10/18 • 11/15 • 12/13

2017 1/10 • 2/7 • 3/14 • 4/11 • 5/16
6/20 • 7/18 • 8/15 • 9/12
10/17 • 11/14 • 12/12

Houston, TX

2016 3/1 • 6/7 • 9/13 • 12/6

2017 3/7 • 9/12 • 12/5

New Orleans, LA

2016 1/5 • 4/5 • 7/12 • 10/11

2017 1/4 • 4/4 • 7/11 • 10/10

St. Paul, MN

2016 3/15 • 6/14 • 9/20 • 12/13

2017 3/14 • 6/13 • 9/19 • 12/12

Sweetwater, TX

2016 3/8 • 6/7 • 9/13 • 12/13

2017 3/7 • 6/6 • 9/12 • 12/12

Tulsa, OK

2016 3/8 • 6/7 • 9/13 • 12/13

2017 3/7 • 6/6 • 9/12 • 12/12

Electrical Safety for Managers

Austin, TX

2016 1/26 • 5/17 • 9/27

2017 1/26 • 5/16 • 9/26

Dallas, TX

2016 2/2 • 6/14 • 10/25

2017 2/2 • 6/15 • 10/26

Sweetwater, TX

2016 2/19 • 6/7 • 10/25

2017 2/21 • 6/6 • 10/24

Lab Session – Electrical Safety for Qualified Electrical Workers

Dallas, TX

2016 1/15 • 2/12 • 3/18 • 4/15
5/20 • 6/24 • 7/22 • 8/19
9/16 • 10/21 • 11/18 • 12/16

2017 1/13 • 2/10 • 3/17 • 4/14
5/19 • 6/23 • 7/21 • 8/18
9/15 • 10/20 • 11/17 • 12/15

Electrical Safety for Non-Electrical Personnel

Austin, TX

2016 4/5 • 6/13

2017 4/4 • 6/13

Dallas, TX

2016 3/7 • 6/20 • 9/12 • 12/12

2017 3/7 • 6/20 • 9/12 • 12/12

Houston, TX

2016 6/6 • 12/5

2017 6/6 • 12/5

New Orleans, LA

2016 4/5 • 9/12

2017 4/4 • 9/12

Sweetwater, TX

2016 6/13 • 12/12

2017 6/13 • 12/12

Tulsa, OK

2016 6/13 • 12/12

2017 6/13 • 12/12

Electrical Safety for Utilities

Austin, TX

2016 1/13 • 5/11 • 9/7

2017 1/11 • 5/9 • 9/6

Dallas, TX

2016 1/26 • 5/24 • 9/20

2017 1/24 • 5/22 • 9/18

Sweetwater, TX

2016 2/23 • 6/21 • 9/20

2017 2/21 • 6/20 • 9/19

Tulsa, OK

2016 1/13 • 5/4 • 9/14

2017 1/12 • 5/2 • 9/12

Electrical Safety Refresher

Austin, TX

2016 1/8 • 7/8

2017 1/9 • 7/10

Dallas, TX

2016 1/19 • 5/16 • 10/17

2017 1/16 • 5/15 • 10/16

Houston, TX

2016 3/4 • 9/16

2017 3/6 • 9/18

New Orleans, LA

2016 1/8 • 7/11

2017 1/9 • 7/10

Sweetwater, TX

2016 3/11 • 9/16

2017 3/13 • 9/18

Tulsa, OK

2016 3/11 • 9/16

2017 3/13 • 9/15

Understanding the NFPA 70E & 2015 Changes

Austin, TX

2016 1/8 • 7/7

2017 1/9 • 7/10

Dallas, TX

2016 2/9 • 8/26

2017 2/10 • 8/25

St. Paul, MN

2016 1/13 • 7/14

2017 1/12 • 7/13

Sweetwater, TX

2016 3/8 • 9/16

2017 3/9 • 9/14

Tulsa, OK

2016 6/10 • 12/16

2017 6/8 • 12/14



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ARTICLE

Keeping your Electrical Safety Program on Track

by William Otterson

Everyone who has been in the electrical industry over the last 20 or more years has witnessed the changes in the OSHA and NFPA 70E safety requirements. The pace of change was slow at first, but the goalpost of safety compliance now changes more rapidly than companies (large or small) can keep up with. Many changes have mainly been driven by a better understanding of the hazards to which electrical workers are exposed, and advancements in technology. But, the result of these changes has had a positive impact. The evolution in regulatory requirements has resulted in a steady and continued reduction in the number of electrically related fatalities in the workplace. From 2003 to 2013 the number of electrical fatalities fell 44% (Electrical Safety Foundation International with data from the Bureau of Labor Statistics). If you look back further (1980 - 2013), the number of electrical fatalities has fallen nearly 75%.

Although, according to NIOSH (National Institute for Occupational Safety and Health), fatal occupational electrocutions have decreased over the last 30 years, electrocution remains the fifth leading cause of occupational fatalities. NIOSH has also reported that worker and supervisor training in electrical safety continue to be inadequate and compliance with OSHA regulations and other safe work practices often does not occur.

The problem for most safety professionals and managers is: How do I protect my coworkers, and my company, in an ever changing world? The answer is: One step at a time. Keep moving forward.

Safety compliance is a never ending battle. Not only do you have to protect your employees from the hazards inherent in the work, but also protect your company from the catastrophic results of accidents and injuries. With the added constraint that comes from having a limited budget, how do you get the best bang for my buck?

At least part of the answer is training. Providing your employees with comprehensive, up to date, safety training is one of the best ways to allocate those limited budget dollars. Whether it is instruction for younger employees joining your organization, or retraining for your longer serving employees, comprehensive safety training gives both the information and foundation in safe work practices they need. The training provided should be given by well qualified instructors with practical field experience. It should help more experienced employees understand the new compliance issues and provide less experienced workers with the basics they can use to complement the on the job portion of their training.

One thing is certain, change is constant. Keep moving forward.





Electrical Safety for Non-Electrical Personnel

About this course...

Virtually every worker on an industrial or commercial job site works with or uses electrically-powered equipment. Most of these workers have no concept of the hazards they could possibly be exposed to by performing common, everyday tasks. Jewelry contacting energized components, overstressed power strips, coffee pots and heaters placed into the workplace all can increase the risk to the employee and to production if the worker is not aware of the potential issues involved. This course covers common situations that could place the non-electrical worker into dangerous situations.

Who should attend...

Industrial plant managers and supervisors, occupational health and safety coordinators, federal, provincial and municipal government building owners, managers, operators and building service technicians, private, commercial and institutional building owners, managers, operators and building service technicians, non-electrical skilled workers such as fitters, painters, carpenters, laborers, utility operators, equipment operators, janitors, waste handlers and warehouse workers, and other workers who may use or interact with electrical equipment and devices.

Prerequisites...

None.

The Details...

Course Length 1 day (8 contact hours)

Tuition \$550

CEUs. Available

Each open-enrollment student will receive a course text. Copies of NFPA 70E available at an additional cost.

You'll learn...

- Review of electrical hazards, their causes and the potential for injuries and fatalities
- Understand how to avoid these hazards
- Common situations that can increase risk to workers
- OSHA's electrical safety-related work practices regulation as it applies to non-electrical personnel
- Understand electrical LOTO and the Safe Work Zone
- Understand applicable OSHA regulations for non-electrical workers
- Understand and apply NFPA 70E requirements for unqualified persons
- Understand the safe approach distances for shock and arc flash and the purpose of a safe work zone

This course is designed to meet the training requirements in NFPA 70E Section 110.2(D)(2).

Online registration now available at:
www.shermco.com/training



Electrical Safety for Managers

About this course...

As is often the case, the supervisors, managers and engineers who are responsible for plant maintenance are not actually the individuals performing hands-on maintenance operations. However, it is critical that they understand workplace safety policies and regulations so they can plan for the direction and training of maintenance staff and assure that proper PPE, LOTO and other safety procedures are well understood and followed.

Who should attend...

Supervisors, managers, engineers, and others responsible for electrical workers.

Prerequisites...

None.

The Details...

Course Length 1 day (8 contact hours)
Tuition \$550
CEUs. Available

Each open-enrollment student will receive a course text and a copy of NFPA 70E.

You'll learn...

- How electrical hazards in the workplace can affect your personnel, your company and those responsible for electrical workers
- Recognize electrical safety hazards and plan a course of action to address each one
- OSHA regulations and NFPA 70E requirements for employers taking specific measures to prevent electrical hazards from causing injury or death
- Electrical hazard awareness and recognition
- Managing liability created by electrical hazards
- Designing and implementing an Electrical Safety Program (ESP) including policies, safe work procedures and permits, hazard analysis, risk assessments and reduction, training, personal protective equipment (PPE) and other specific written program documents
- Performing an electrical hazard/risk analysis
- Using the NFPA 70E to interpret hazard/risk category classification (HRC) of a given task and assure adequate PPE
- How to incorporate changes implemented by the NFPA 70E update
- Identify the steps needed to protect employees who work on or near energized parts

Online registration now available at:
www.shermco.com/training



Electrical Safety for Utilities

About this course...

Electrical utility workers are exposed to live energy hazards every day, often at high voltages. Understanding the impact of these hazards and implementing the best practices for managing projects and tasks is critical to the safety of both personnel and equipment. This hands-on course is designed to address those special requirements and techniques.

Who should attend...

Linemen, technicians and supervisors responsible for operating and maintaining either utility- or non-utility-owned substations or electric power generation, transmission and distribution systems operating above 600 volts; safety professionals who work with linemen, technicians and supervisors, and system operators who could benefit from enhanced knowledge of electric power generation, transmission and distribution system safety requirements.

Prerequisites...

Attendees should have basic electrical knowledge, field experience with generation, transmission and distribution systems operating above 600 volts is desired but not required.

The Details...

Course Length 2 days (16 contact hours)
Tuition \$830
CEUs. Available

Each open-enrollment student will receive a course text.

You'll learn...

- Electrical hazard awareness including the relationship between electrical hazards and personal injury or death
- Work rules such as determining safe approach distances for exposed energized conductors and components based on OSHA's 29CFR1910.269, and National Electrical Safety Code (NESC)
- The proper use of special precautionary techniques, personal protective equipment (PPE), insulating and shielding materials and insulated tools for working on or near exposed energized parts of electric equipment based on OSHA and NESC
- How to inspect PPE such as rubber insulating gloves, hot sticks, rubber blankets, hard hats, face shields and arc flash clothing
- Absence-of-voltage testing using contact and non-contact devices
- Lecture augmented with discussions; approximately 25% lab time (written and hands-on).

NOTE: Employees who work primarily with systems and equipment operating below 600 volts should enroll in Shermco's Electrical Safety for Qualified Electrical Workers course.



Online registration now available at:
www.shermco.com/training



Electrical Safety for Qualified Electrical Workers

About this course...

Designed for all maintenance and testing personnel who work on or near electrical equipment, this seminar meets and exceeds the basic OSHA mandated electrical safety training. All of the concepts of electrical safety are carefully explained and both classroom and hands-on sessions assure that the skills and knowledge can be demonstrated to meet the OSHA requirements. The basic classes and labs are primarily focused on applications below 600 volts, but an optional one day lab session is available for understanding and demonstrating the special skills and knowledge required for medium voltage applications.

Who should attend...

Electrical technicians, HVAC technicians, field-service personnel, electricians, multi-craft workers, supervisors and engineers responsible for employees that work on or near energized equipment from 50 volts to 25,000 volts and who would be classified as "qualified" by OSHA.

Prerequisites...

Attendees should have basic electrical training, field experience recommended but not mandatory.

The Details...

Course Length 2.5 days (20 contact hours)
Tuition \$830
CEUs. Available

Each open-enrollment student will receive a course text and a copy of NFPA 70E.

You'll learn...

- Recognize, understand and avoid electrical hazards and risks (Shock, arc flash and arc blast)
- How to develop and implement a JSA/JHA to address hazards and plan the required steps needed to work safely on or near energized conductors and circuit components.
- Safe work practices for work on or near metal clad switchgear, substations, motor control centers medium voltage motor starters and facility electrical systems.
- How to place equipment in an electrically safe work condition and properly utilize lockout/tagout (LOTO) requirements.
- Proper selection, maintenance, testing, use and storage of PPE and understand their purposes and limitations.
- How to inspect insulated tools and understand their limitations of use
- How to select and apply temporary grounds as well as specific equipment grounding hazards including step and touch potentials
- How to use a transformer short circuit current/incident energy calculator and how to estimate incident energy under field work conditions
- How to perform absence-of-voltage testing to ensure an electrically safe work condition
- Review OSHA Electrical Safety Related Work Practice regulations (29CFR 1910.311-.335 as well as Articles 110, 12 and 130.
- Understand the current utilization of NFPA 70E and the annex tables

OSHA requires demonstration of skills and knowledge. Shermco's "qualified person" training provides documented tests and hands-on lab sessions to meet OSHA's mandates. Shermco's "qualified worker" training is designed to fully meet OSHA 29CFR1910.399, .332 and .333, as well as NFPA 70E Section 110.2.



Lab Session – Electrical Safety for Qualified Electrical Workers

About this course...

Technicians and supervisors are often hesitant to perform tasks on medium-voltage equipment without some prior training or experience. This one-day lab session pulls all the pieces together for planning and executing specific tasks on medium-voltage energized equipment. A short planning session is followed by hands-on practice in Shermco’s training substation under the supervision of our field-experienced instructors.

You'll learn...

- How to assemble all the components of an electrical safety program into a practical job plan

Who should attend...

Qualified electrical workers who want to understand how to implement safe work practices on a practical level, occupational health and safety managers and coordinators, federal, provincial and municipal government building owners, managers, operators and building service technicians, and private commercial and institutional building owners, managers, operators and building service technicians.

Prerequisites...

Electrical Safety for Qualified Electrical Workers training course.

The Details...

Course Length 1 day (8 contact hours)
 Tuition \$550
 CEUs. N/A



Online registration now available at:
www.shermco.com/training



Electrical Safety Refresher

About this course...

This one day class is designed for those who have previously met the OSHA mandated training requirements of NFPA 70E and need to be re-certified. It is a concise review of the concepts and practices required for safe electrical work.

Who should attend...

Electricians, technicians, field-service personnel, supervisors and engineers responsible for employees who perform operation or maintenance work on electric utilization equipment, as well as others who may be considered "qualified persons" by OSHA.

Prerequisites...

Attendees should have completed OSHA-mandated electrical safety training.

The Details...

Course Length 1 day (8 contact hours)
Tuition \$550
CEUs. Available

Each open-enrollment student will receive a course text(copy of NFPA 70E available at an additional cost).

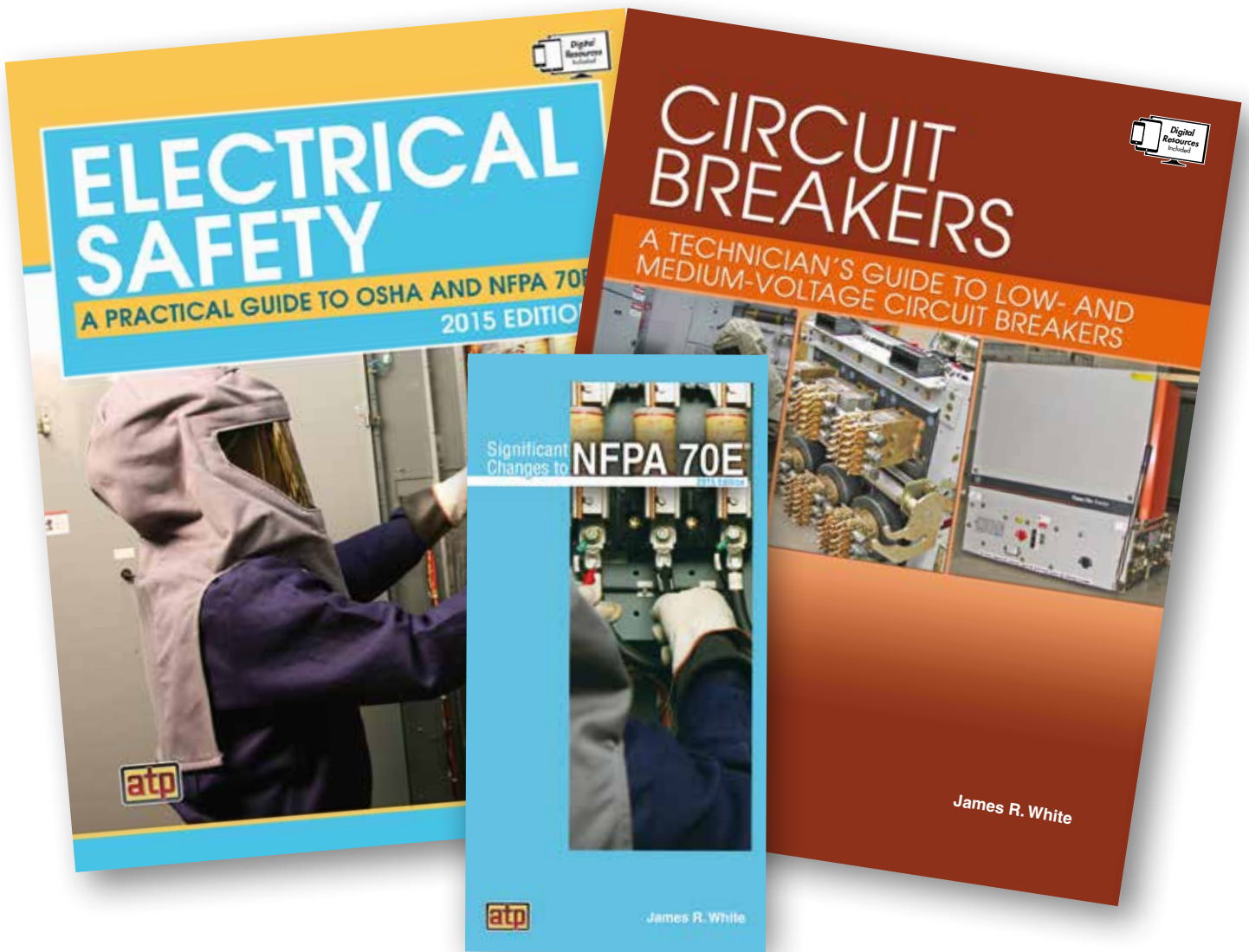
You'll learn...

- Electrical hazards and safety procedures for work on metal-clad switchgear, substations, motor control centers and facility electrical systems
- Proper selection, maintenance and use of required personal protective equipment (PPE)
- Energized and de-energized work policy and lockout/tagout (LOTO) requirements
- Safe use of portable electric equipment, including inspection and testing
- Review of OSHA Electrical Safety-Related Work Practice regulations (29CFR1910.331-.335) as well as Articles 110, 120 and 130 of the NFPA 70E

This course is designed to meet the training requirements in NFPA 70E Section 110.2(D)(3).



Online registration now available at:
www.shermco.com/training



These publications, authored by Shermco's Jim White, are perfect supplements to your electrical safety reference material.

Electrical Safety: A Practical Guide to OSHA and NFPA 70E

A comprehensive overview of electrical safety in the workplace, presenting OSHA regulations and helping readers become more familiar with the 2015 edition of NFPA 70E. Drawing on his many years of experience in the field and as a safety instructor, Jim shares his knowledge of real-life incidents.

Significant Changes to NFPA 70E

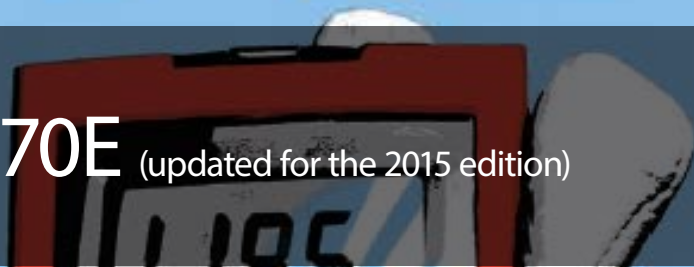
Pocket guide that provides authoritative and succinct coverage of the major changes contained in the 2015 edition of NFPA 70E. With many years of experience in the field and as an instructor, Jim provides insightful interpretations of key provisions and concepts. This guide is a valuable reference tool for safety officials, technicians, and other industry professionals.

Circuit Breakers: A Technician's Guide to Low- and Medium-Voltage Circuit Breakers is a comprehensive overview of circuit breakers used in commercial, industrial, and utility applications and covers circuit breaker construction, operation, and maintenance. This new textbook covers insertion and removal (racking) of circuit breakers, safety and protection from arc-flash hazards, and troubleshooting procedures for circuit breakers.

To retain a copy of these publications contact Shermco or visit American Technical Publishers at www.atplearning.com.

NFPA 70E

STANDARD FOR ELECTRICAL



Understanding the NFPA 70E (updated for the 2015 edition)

About this course...

This training program is an in-depth study of the NFPA 70E requirements in Chapters 1 and 2. NFPA 70E has a huge impact on your company's operations. Don't guess at what the 70E means; get the right information from the source. This course was developed by NFPA 70E committee members and is constantly updated with the latest changes as proposed by the Committee.

Who should attend...

Technicians, field-service personnel, electricians, safety managers, safety professionals, supervisors and engineers responsible for employees who perform operation or maintenance work on electric utilization equipment or power generation, transmission or distribution installations with voltages from 50 volts and higher.

Prerequisites...

Students should have basic electrical training and knowledge.

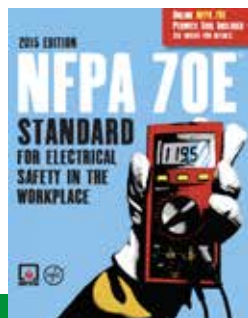
The Details...

Course Length 1 day (8 contact hours)

Tuition \$550

CEUs. Available

Each open-enrollment student will receive a copy of NFPA 70E.



You'll learn...

- How to use the 70E effectively
- How NFPA 70E is structured
- General Safety Requirements for Electrical Safety-Related Work Practices
- Training requirements for qualified and unqualified persons
- Establishing an Electrically Safe Work Condition
- Lockout/tagout (LOTO) of electrical equipment
- Approach boundaries, shock and arc flash
- Hazard/risk categories and Tables 130.7(C)(15)(a) and (b), 130.7(C)(16) and Tables H.2, H.3(a) and H.3(b)
- Safety-related maintenance requirements for overcurrent protective devices (OCPD)
- NFPA 70E requirements for work on or near exposed energized conductors and circuit parts
- To effectively select arc flash and shock PPE based on NFPA 70E requirements when using the tables or when an arc flash study has to be performed
- How to understand the requirements of an Electrical Safety Program (ESP) and how to implement one
- How to understand what changes have been made to the NFPA 70E and how they may affect your company and its employees
- Seminar-based program with round-table discussions.

NFPA 70E has a huge impact on your company's operations. Don't guess at what the 70E means; get the information from the source. This course was developed by NFPA 70E committee members and is constantly updated with the latest changes as proposed by the committee. Changes to the 2015 edition of NFPA 70E are covered .



Basic Electrical Fundamentals

About this course...

Whether you are new to the industry or are taking on additional responsibilities for electrical maintenance, a solid knowledge of the basics is essential to understanding the operations, maintenance and safety of any facility or factory site. This is a hands-on practical introduction to those concepts and skills that serves as a prerequisite to further training and career enhancements for both technicians and managers.

Who should attend...

This training program is of benefit to electricians, technicians and multi-craft workers working on or near electrical conductors and circuit parts. Many of these workers do not have a solid understanding of electrical basics and cannot move forward in the careers effectively; they don't know what they don't know. This program ensures that those workers, especially workers new to the electrical field, have an adequate understanding of electrical theory and systems.

Prerequisites...

None

The Details...

Course Length 2 days (16 contact hours)
Tuition \$630
CEUs. Available

Each student will receive a course text and Ugly's Electrical Reference.

You'll learn...

- Fundamentals of matter, energy and electricity
- Direct current (DC) fundamentals, including Ohm's Law and calculating voltage, current, resistance and power in the DC systems
- Battery theory and operation
- Alternating current (AC) fundamentals, including application of Ohm's and Kirchoff's Laws to single- and three-phase circuits
- How AC is generated
- Inductance, capacitance and reactance
- How transformers work

Online registration now available at:
www.shermco.com/training



Basic Electrical Technical Skills

About this course...

A companion course to Basic Electrical Fundamentals, this course features a detailed, hands-on training regimen on the use of electrical testing equipment, electrical system trouble shooting and interpretation of electrical drawings. These are the basic skills required by any technician to safely and efficiently maintain and operate electrical equipment.

Who should attend...

This course is intended to teach basic testing and troubleshooting skills to electricians, technicians and multi-craft personnel so they can work safely around electrical control and power circuits. This course is also beneficial to non-electrical workers who must assist electrical workers in their tasks.

Prerequisites...

Attendees must have a solid understanding of basic electricity acquired through classroom/OJT or completion of Shermco's Basic Electrical Fundamentals training program.

The Details...

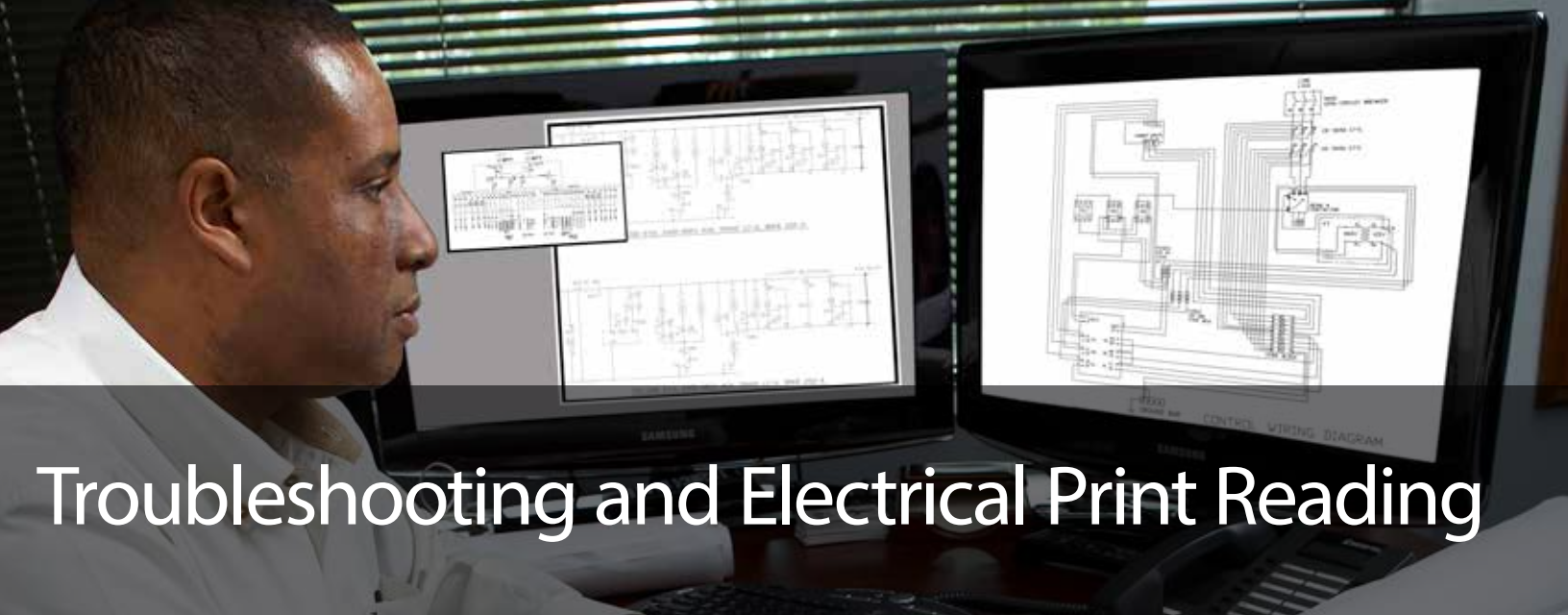
Course Length 3 days (24 contact hours)
Tuition \$940
CEUs. Available

Each student will receive a course text and Ugly's Electrical Reference.

You'll learn...

- How to use Digital Volt Ohm Meters (DVOMs) to safely test a variety of components
- How to interpret nameplates and dataplates of common electrical devices
- Proper method for operating switches and circuit breakers
- The explanation and use of overcurrent protective devices, molded-case circuit breakers and low-voltage power circuit breakers
- How to effectively troubleshoot electrical control and power circuits
- How to interpret electrical drawings and prints
- Safe work practices for voltage testing, megohmmeters and micro-ohmmeters

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Troubleshooting and Electrical Print Reading

About this course...

This is a fundamental course developed for technicians and managers who need to understand electrical power systems: how they are designed, what can go wrong and how to find the problem areas. Several types of drawings and schematics are explained and hands-on exercises will demonstrate their practical use for basic troubleshooting.

Who should attend...

Electrical technicians, field engineers, electrical estimators, project managers, inspectors, contractors, journeyman electricians who depend on effective skills and knowledge of print reading.

Prerequisites...

Attendees should have basic electrical training, some field experience is recommended but not mandatory.

The Details...

Course Length 2 days (16 contact hours)

Tuition \$840

CEUs. Available

Each open-enrollment student will receive a course text.

You'll learn...

- How electrical drawings are laid out
- To use legends on electrical drawings
- How to understand and identify typical electrical symbols
- Applications for standard ANSI/IEEE device numbers
- The types of drawings, the basic layout and the purpose of each
- How circuits and devices interact with each other
- To understand the "logic" functions in electromechanical control systems
- To troubleshoot electrical problems using elementary diagrams, one-line diagrams and schematics
- To understand device functions and system operations such as circuit breaker and motor controls and transfer schemes
- Hands-on (~30%) training program augmented with round-table discussions, and perform practical exercises using elementary diagrams, one-line diagrams and schematics.



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at:
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Motor Maintenance and Testing

About this course...

This course is designed to provide electrical technicians and maintenance managers with a fundamental understanding of electric motors: how they work, how they break and what maintenance strategies can improve uptime performance. Both electrical and mechanical tests and how they are interpreted are reviewed including hands-on skills training and assessment. These analytical tests are critical for troubleshooting and are at the core of a comprehensive predictive maintenance program (PdM) for rotating machinery in commercial, industrial and utility operations.

You'll learn...

- Basic theory, construction and operation
- Interpreting motor nameplates
- Mechanical and visual inspection procedures for motors
- Preventive (PM) and predictive (PdM) motor maintenance procedures
- Bearing failure causes and how to correct them
- NFPA 70B requirements
- Hands-on (~30%) training program augmented with round-table discussions

Who should attend...

Plant maintenance technicians and electricians.

Prerequisites...

Students should have basic electrical training, some field experience is recommended.

The Details...

Course Length 3 days (24 contact hours)

Tuition \$1,320

CEUs. Available

Each open-enrollment student will receive a course text (copy of NFPA 70B available at an additional cost).



Online registration now available at:
www.shermco.com/training



National Electrical Code

About this course...

This course was developed to explain and provide practical exercises for understanding the significant sections of the NEC identified with commercial and industrial locations. This is a critical document when repairing, updating or expanding current power systems and related machinery as well as for new construction projects.

Who should attend...

Electricians, electrical engineers, maintenance personnel, and facilities management who are responsible for safe and efficient use of electricity in their workplace.

Prerequisites...

Requires working knowledge of basic electricity, some knowledge of the National Electrical Code (NEC) would be helpful.

The Details...

Course Length 3 days (24 contact hours)
Tuition \$1,320
CEUs. Available

Each student will receive a course text. 2014 Understanding the NEC, Volume 1 Articles 90-480, by Mike Holt

You'll learn...

- What is a Code, Standard, and Recommended Practice?
- The structure of the NEC
- Article 90 - more than an 'Introduction' to the NEC
- Definitions (Article 100)
- General requirements (Articles 110 and 300)
- Branch Circuits (Article 210)
- Feeders (Article 215)
- Services (Article 230)
- Overcurrent protection (Article 240)
- Grounding and Bonding (Articles 200 and 250)
- Conductors (Article 310 and Annex C)
- Motors (Article 430)
- Transformers (Article 450)
- Hazardous Locations (Chapter 5)
- Practical exercises are included in this seminar-based program but no hands-on lab sessions

 Online registration now available at: www.shermco.com/training



Shermco industries
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4 WAYS TO REGISTER

1. Call the Training Department at 972.793.5523
2. Fax registration to 972.793.5542, Attn: Training Department
3. Email registration form to traininginfo@shermco.com
4. Mail completed registration form to:
 Shermco Industries
 Attn: Training Department
 2425 East Pioneer Drive
 Irving, Texas 75061

COURSE REGISTRATION FORM

P L E A S E P R I N T C L E A R L Y T O A V O I D R E G I S T R A T I O N E R R O R S

COMPANY NAME			
ADDRESS			
CITY		STATE/PROV	
CONTACT NAME		EMAIL	
WORK PHONE		EXT	FAX
COURSE TITLE		COURSE LOCATION	
		COURSE DATE	

Students You Wish to Enroll:

STUDENT NAME	EMAIL
STUDENT NAME	EMAIL
STUDENT NAME	EMAIL
STUDENT NAME	EMAIL
STUDENT NAME	EMAIL

Payment by Credit Card:

TYPE OF CARD <input type="checkbox"/> AMERICAN EXPRESS <input type="checkbox"/> MASTERCARD <input type="checkbox"/> VISA		
CARD NUMBER	EXP. DATE	SECURITY CODE
NAME AS IT APPEARS ON CARD		
CREDIT CARD BILLING ADDRESS		
CITY	STATE/PROV	ZIP CODE

SIGNATURE OF CARD HOLDER

Payment by Purchase Order:

Payment by Check:

PURCHASE ORDER NUMBER	ENCLOSED CHECK <input type="checkbox"/> PERSONAL <input type="checkbox"/> COMPANY
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PLEASE DO NOT MAKE ANY AIRLINE RESERVATIONS UNTIL YOU RECEIVE WRITTEN CONFIRMATION OF YOUR COURSE REGISTRATION

Terms and Conditions:

COURSE FEES: Enrollment is not guaranteed until full payment is received. You will be placed on a waiting list if your registration form does not include payment. All payments should be made payable to Shermco Industries, Inc. in U.S. dollars.

METHOD OF PAYMENT: Payment shall be made in one of the following methods:

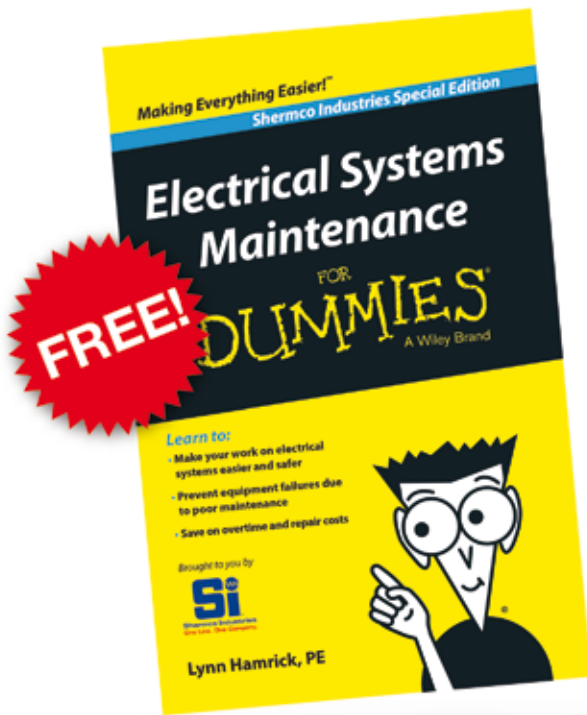
1. Credit Card (American Express, MasterCard, VISA)
2. Purchase Order (copy must accompany registration form)
3. Check in the full amount

CONFIRMATION: Written confirmation will be emailed to you or the person registering you approximately 14 days prior to the first day of class. A map to the location of the class, information regarding hotel accommodations and other helpful information will accompany the confirmation letter.

All hotel reservations and charges, transportation arrangements and other fares are the responsibility of the student. Students should not schedule return flights to depart less than two (2) hours after the class is scheduled to end.

CANCELLATION POLICY: Shermco's cancellation policy allows a full refund for cancellations made ten (10) or more business days in advance of the class. Cancellations with less than ten (10) business days notice will result in a sixty percent (60%) refund of the tuition to cover expenses for which we have guaranteed payment. Clients may substitute students at any time prior to the start of the class.

NOTIFICATION FOR CANCELLATION OR CHANGES: Shermco reserves the right to cancel any class or make other changes in course content, schedule or facilities. Every effort will be made to provide prompt notification of any cancellation or other changes pertaining to course content, schedule or facilities.



For a free copy or e-book of
***Electrical Systems
Maintenance for
Dummies***

send your request to
info@shermco.com



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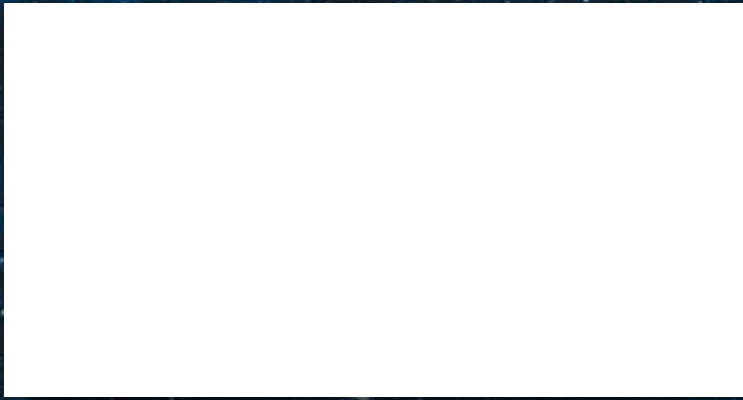
These are just highlights of the services that we provide. We would love the opportunity to come visit your site and see where we can help. Don't hesitate to call.

We look forward to working with you to provide a solution that will address your electrical and rotating equipment needs.

www.shermco.com
888.SHERMCO

**Your one-stop, full-service
electrical maintenance, testing
and repair company.**

- **Motor/Generator Remanufacturing**
- **Predictive Maintenance**
- **Engineering**
- **Safety & Training**
- **International Services**
- **Disaster Recovery**
- **Oil Diagnostics Lab**
- **Drive Systems**
- **Motor/Generator Field**
- **Wind Power**
- **Switchgear Shop**
- **New Equipment Sales**
- **Onsite Circuit Breaker Maintenance**
- **Electrical Testing & Maintenance**
- **Replacement Parts & Components**



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