TPC TRAINING

Live training onsite, online, or at a seminar near you.

Fall / Winter 2018-2019

Only $550 per day
$1100 for 2 Days (1.6 CEUs)
$2200 for 4 Days (3.2 CEUs)

Please help our logistics team and register early.
Cancel up to 14 days in advance without penalty*.

Promo Code: X05

Hands-On
Electrical Troubleshooting
Workshop

ETW-AX

Training Courses designed to take the mystery out of Electrical Troubleshooting

Electrical Troubleshooting Workshop - 4-Day Workshop - $2200

This is a combination of 'Electrical Troubleshooting & Preventive Maintenance' and 'Advanced Electrical Troubleshooting' seminars.

ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES
CA	Sacramento	Jan 14-17 '19	IL	Elk Grove Village	Oct 22-25 '18	KS	Wichita	Feb 4-7 '19	OH	Cleveland	Nov 12-15 '18
CO	Denver	Nov 26-29 '18	IL	Joliet	Dec 17-20 '18	MA	Worcester	Jan 7-10 '19	OR	Portland	Jan 28-31 '19
FL	Tampa	Oct 29-Nov 1 '18	IL	Naperville	Dec 10-13 '18	NH	Manchester	Jan 21-24 '19	TN	Nashville	Dec 3-6 '18

Electrical Troubleshooting & Preventive Maintenance - 2-Day Seminar - $1100

ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES
AK	Anchorage	Dec 19-20 '18	GA	Atlanta	Oct 3-4 '18	MN	Minneapolis	Oct 3-4 '18	OR	Portland	Jan 28-29 '19
AL	Birmingham	Dec 5-6 '18	GA	Atlanta	Jan 16-17 '19	MN	Minneapolis	Mar 6-7 '19	PA	Allentown	Nov 7-8 '18
AL	Mobile	Oct 31-Nov 1 '18	GA	Marietta	Oct 11-12 '18	MO	St. Louis	Nov 14-15 '18	PA	Harrisburg	Oct 31-Nov 1 '18
AZ	Phoenix	Nov 14-15 '18	GA	Marietta	Jan 30-31 '19	MO	Kansas City	Feb 27-28 '19	PA	Philadelphia	Nov 28-29 '18
AZ	Tucson	Nov 7-8 '18	HI	Honolulu	Jan 9-10 '19	NC	Charlotte	Oct 31-Nov 1 '18	PA	Pittsburgh	Jan 23-24 '19
CA	Burbank	Oct 17-18 '18	IA	Des Moines	Jan 30-31 '19	NC	Greensboro	Oct 31-Nov 1 '18	RI	Providence	Oct 11-12 '18
CA	Fresno	Oct 31-Nov 1 '18	ID	Boise	Jan 16-17 '19	NC	Raleigh	Nov 14-15 '18	SC	Columbia	Feb 20-21 '19
CA	Modesto	Dec 19-20 '18	IL	Elk Grove Village	Oct 22-23 '18	NE	Omaha	Dec 12-13 '18	SC	Greenville	Nov 28-29 '18
CA	Oakland	Oct 3-4 '18	IL	Joliet	Dec 17-18 '18	NH	Manchester	Jan 21-22 '19	SD	Sioux Falls	Oct 24-25 '18
CA	Oakland	Dec 12-13 '18	IL	Naperville	Dec 10-11 '18	NJ	Newark	Jan 16-17 '19	TN	Knoxville	Feb 20-21 '19
CA	Ontario	Nov 28-29 '18	IN	Evansville	Feb 13-14 '19	NM	Albuquerque	Dec 19-20 '18	TN	Memphis	Dec 12-13 '18
CA	Orange County	Dec 19-20 '18	IN	Fort Wayne	Oct 11-12 '18	NV	Las Vegas	Dec 12-13 '18	TN	Nashville	Dec 3-4 '18
CA	Sacramento	Oct 3-4 '18	IN	Indianapolis	Jan 23-24 '19	NV	Reno	Jan 9-10 '19	TX	Arlington	Dec 5-6 '18
CA	Sacramento	Jan 14-15 '19	KS	Wichita	Feb 4-5 '19	NY	Albany	Oct 24-25 '18	TX	Austin	Jan 30-31 '19
CA	San Diego	Nov 7-8 '18	KY	Louisville	Jan 23-24 '19	NY	Albany	Feb 27-28 '19	TX	El Paso	Dec 12-13 '18
CA	San Jose	Feb 13-14 '19	LA	New Orleans	Oct 17-18 '18	NY	Buffalo	Jan 23-24 '19	TX	Houston	Nov 14-15 '18
CA	Santa Rosa	Feb 20-21 '19	MA	Peabody	Dec 5-6 '18	NY	Long Island	Feb 20-21 '19	TX	Lubbock	Jan 16-17 '19
CO	Denver	Nov 26-27 '18	MA	Worcester	Jan 7-8 '19	NY	Rochester	Nov 14-15 '18	TX	San Antonio	Nov 7-8 '18
CT	Hartford	Nov 7-8 '18	MD	Baltimore	Nov 14-15 '18	NY	Syracuse	Jan 16-17 '19	TX	Temple	Feb 20-21 '19
DC	Washington	Nov 28-29 '18	ME	Portland	Feb 13-14 '19	NY	White Plains	Dec 12-13 '18	UT	Salt Lake City	Oct 31-Nov 1 '18
DE	Wilmington	Dec 5-6 '18	MI	Ann Arbor	Jan 9-10 '19	OH	Cincinnati	Jan 23-24 '19	VA	Norfolk	Dec 12-13 '18
FL	Ft. Lauderdale	Feb 20-21 '19	MI	Grand Rapids	Oct 3-4 '18	OH	Cleveland	Nov 12-13 '18	VA	Richmond	Dec 5-6 '18
FL	Jacksonville	Dec 19-20 '18	MI	Grand Rapids	Feb 6-7 '19	OH	Columbus	Oct 24-25 '18	WA	Seattle	Feb 13-14 '19
FL	Orlando	Jan 9-10 '19	MI	Kalamazoo	Feb 20-21 '19	OH	Dayton	Feb 13-14 '19	WA	Tacoma	Jan 16-17 '19
FL	Tampa	Oct 29-30 '18	MI	Romulus	Jan 30-31 '19	OK	Tulsa	Nov 28-29 '18	WI	Madison	Feb 13-14 '19
									WI	Milwaukee	Dec 12-13 '18

Advanced Electrical Troubleshooting - 2-Day Seminar - $1100

ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES	ST.	CITY	SEMINAR DATES
CA	Sacramento	Jan 16-17 '19	IL	Elk Grove Village	Oct 24-25 '18	KS	Wichita	Feb 6-7 '19	OH	Cleveland	Nov 14-15 '18
CO	Denver	Nov 28-29 '18	IL	Joliet	Dec 19-20 '18	MA	Worcester	Jan 9-10 '19	OR	Portland	Jan 30-31 '19
FL	Tampa	Oct 31-Nov 1 '18	IL	Naperville	Dec 12-13 '18	NH	Manchester	Jan 23-24 '19	TN	Nashville	Dec 5-6 '18

Reserve Your Space Risk-Free **live.tpctraining.com** **1-877-978-7246**

Hands-On
Electrical Troubleshooting Workshop

Electrical Troubleshooting & Preventative Maintenance

Working with real-world components, students in this two-day "hands-on" Electrical Troubleshooting course will learn how to fix electrical problems quickly and safely. This two-day course was created to bring students up to speed in their electrical troubleshooting skills as efficiently as possible, and it was designed to cover the most commonly performed electrical troubleshooting tasks a maintenance technician faces in their job every day. For the novice or experienced electrician, this training course provides a no-nonsense approach to electrical troubleshooting. This course can also be adopted as part of a company's regular Qualified Electrical Worker program.

Discussion Topics

Basic Skills for Electrical Troubleshooting
- Safety First
- OSHA Requirements Regarding Troubleshooting and Qualified Persons
- Using Electrical Drawings for Troubleshooting
- Using Electrical Meters to Perform Circuit Measurements
- Developing a Logical, Systematic Approach to Troubleshooting

Troubleshooting Control Circuits
- Building a Circuit from a Ladder Diagram
- Control Circuit Industrial Applications
  - Control Relay Logic Circuits
  - Automatic Motor Control Circuits
  - Timer Sequence Circuits
- Testing Field Components:
  - Control Relays
  - Motor Starter Contactors
  - Overload Devices
  - Solid State Timers
  - Limit Switches
  - Auxiliary Contact Blocks
  - Indicator Lamps
  - Push Buttons & Selector Switches
  - Circuit Breakers and Fuses

Troubleshooting Motors
- Most Common Motor Problems
- Electrical and Mechanical Concerns
- Performing Electrical Tests on a Motor
- Using the Megohmmeter on a Motor
- Testing Windings for Shorts, Opens and Ground Faults
- Phase Unbalance and Rotation Testing
- Forward/Reverse Motor Starters

Troubleshooting Power Distribution
- Wye and Delta Systems
- Overcurrent Protection
- Checking and Replacing Fuses
- Branch Circuits

Power Quality Problems
- Sources of Power Quality Problems
- Test Equipment for Troubleshooting Power Quality Problems
- Harmonics
- Phase Unbalance

Troubleshooting Lighting Circuits
- Lighting Terminology
- Types of Lighting Circuits
- Incandescent, Fluorescent, HID, and LED Lighting

Troubleshooting Programmable Logic Controllers (PLCs)
- Overview of PLCs
- Components
- Reading PLC Ladder Diagrams
- Status Indicators and Error Codes
- Force and Disable
- Startup Procedures

Electrical Preventative Maintenance
- Why Perform Electrical Maintenance
- Overview of an Electrical Maintenance Program
- Building Your Own Walk-Through Inspection Checklist

Advanced Electrical Troubleshooting

This two-day course is designed for electrical maintenance workers looking to gain additional in-depth hands-on understanding of complex controls and control circuits. Hands-on lab activities are the focus of this course. Throughout the day, participants will troubleshoot on a large variety of systems components, ranging from forward/reversing motor control circuits to proximity switches and float switches.

Discussion Topics

Advanced Skills for Electrical Troubleshooting
- Requirements per the National Electrical Code® (NEC) for control circuits, and electric motors
- Overview of Motor rules per article 430 in the National Electrical Code®
- Navigate from multiple page electrical drawings
- Using both NEMA and IEC Electrical Drawings
- Component troubleshooting using an electrical meter
- Learn advanced features of multimeters.
- The right questions and the correct way to approach troubleshooting

Testing Field Components: Hands-on Exercises
- Inductive, Capacitive, and Magnetic proximity sensors
- Photoelectric sensor retroreflective/ visible red-light emission
- Float switches
- Control Relays
- Motor Starter Contactors
- Overload Devices
- Forward/Reversing motor starter
- Solid State Timers
- Limit Switches
- Auxiliary Contact Blocks
- Indicator Lamps
- Push Buttons
- Selector Switches – 2-position and 3-position
- Circuit Breakers

Build and Troubleshoot Advanced Motor Control Circuits
- Multiple Stop Start Stations
- Forward Reversing Circuits
- Level Control Circuits
- Test and understand all components
- Learn how to quickly troubleshoot
- Make field changes based on changes in the schematics
- Add remote control capabilities

Motor Troubleshooting and Preventative Maintenance
- Single Phase, Three Phase, and DC Motors
- Important Motor Nameplate Parameters
- Preventive Maintenance for Motors
- Proper Tools for Motor Troubleshooting

Troubleshooting Variable Frequency Drives (VFDs)
- VFD Terminology and Basic Operation
- Major Components
- Common Problems & Corrective Actions.

Power Quality Problems
- Sources of Power Quality Problems
- Test Equipment
- Harmonics
- Phase Unbalance

"Clear & concise (for) real life applications"
Steve Olson - Eng Tech - Cargill Deicing Technology

Training Philosophy

Our training is designed with practical, real-world facility and industrial applications in mind. It is unbiased, unaffiliated and non-commercial so you are assured of a real education and not a product sales pitch. It focuses less on theory and more on the actual steps students need to properly maintain equipment or fix specific problems at their own plant or facility.

Our instructors will simplify the subject matter for the novice or go in-depth to answer an engineer's toughest question. We have over 200,000 hours of experience of live classroom training using these methods, and it is why our students keep coming back.

About Our Instructors

Our team of 60 field-experienced instructors is the backbone of our training seminar schedule. All of our instructors must meet three core requirements: 1) Relevant formal education in the seminar topic area, 2) documented hands-on work experience in their area, and 3) specific experience as a maintenance training instructor.

*No Risk Registration & Money Back Guarantee

Not sure whether you or your employees will be able to attend an upcoming seminar? You can reserve your space in the class at any time and cancel without penalty. Cancellations made more than 14 days prior to the seminar may be refunded or rescheduled. Cancellations made within 14 days may be rescheduled for any future topic and/or date. If you're not satisfied with the course, we'll promptly refund your payment.

On-Site Training

TPC Training conducts hundreds of on-site trainings at customer facilities each year. Every public seminar class in our Course Catalog can be conducted on-site, with the same expert instructors. To arrange an on-site training, email us at onsite@tpctraining.com.

To be removed from future mailings, please mail or fax your addressed envelope or postcard along with the mailing promotion code and removal note to: TPC Training, P.O. Box 3397, Englewood CO, 80155. Fax: 303-531-4565.

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