

Learn About:

- Reasons to have UPS Systems
- The Basic Building Blocks Common to all UPS Systems
- Construction and Operation of the Major Types of Industrial UPS Systems
- Maintaining and Performing Tests on Lead-Acid and Ni-Cad Battery Systems
- The Hazards and Safe Work Practices Related to UPS Systems and Batteries
- Basic Troubleshooting Techniques for UPS Systems
- Preventive Maintenance Practices
- Quarterly and Annual Testing
- Manufacturer Recommended Maintenance Practices

Uninterruptible Power Supply (UPS) Systems

Specifically for maintenance personnel who are “first responders” in industrial plants, public facilities, and commercial buildings.



“Don’t know how the class could be any better.”

Mark M. - Maintenance Supervisor

A 2 day Course for a Basic Understanding of UPS Systems in an Emergency Situation

- Reserve your space now! **CALL 1-877-978-7246**
- Check us out online at live.tpctraining.com for a complete listing of all seminars coming to your area
- This seminar is also available as an **Online Simulcast** or can be brought **On-Site** to your facility



SEMINAR OVERVIEW

How often do you get a chance to work with the Uninterruptible Power Supply system in your facility? Do you know what steps to take in the event of an emergency so that your facility can be kept up and running? What is your procedure if something goes wrong? What about regular testing and preventive maintenance? This two day Uninterruptible Power Supply (UPS) Systems training seminar is perfect for anyone who could be at a facility when a power outage occurs - the plant electrician, maintenance technician or a supervising engineer, for example. Backup emergency systems are essential, but only valuable if you have the people on staff trained to work with them in emergency situations. This Uninterruptible Power Supply (UPS) Systems seminar is designed to make sure your plant and facility personnel are ready for anything.

WHAT YOU WILL TAKE HOME

- Comprehensive classroom materials
- A Personalized Training Certificate with 0.8 TPC Training Continuing Education Units for each day attended, 1.6 for both days.
- All the information you need from asking our instructors specific questions about your own unique equipment or facility.

CONTINUING EDUCATION

Upon completion of this seminar, the student will receive a Certification of Completion and .8 TPC Training CEUs per day attended. Most employers and many government agencies accept TPC Training CEUs to fulfill their continuing education requirements. If the student needs CEUs to renew a state license, please contact us at 303-867-5039 to ensure the state licensing board has approved the seminar. If we are currently not approved by your state licensing board, we are happy to begin the process as long as we receive your request at least one month before the training date.

TRAINING PHILOSOPHY

TPC Training's curriculum is designed to provide complete coverage of essential industrial maintenance skills, across a full range of electrical training, HVAC, plant management, and mechanical & industrial topics. Our "see, touch, do" instructional approach allows us to impart practical skills in an intensive format.

The most vital part of our seminar format is the coverage that goes beyond the course outline. Our small class sizes allow each instructor to tailor the course to address students' individual needs, concerns, and experience levels. Our instructors deliver content with hands-on exercises, demonstrations role-playing, visuals, and case study discussions.

DISCUSSION TOPICS

Why Have a Uninterruptible Power Supply System

- Types and Duration of UPS
- Power System Disturbances
 - Sags
 - Surges and Spikes
 - Outages
 - Phase relationships
- The CBEMA Curve

Three General Types of UPS

- Kinetic (Motor Generator Sets)
- Flywheel
- Static

Three Types of Static UPSs

Review of Passive Electronic Components

- Volts, Ohms and Amps in DC and AC Circuits
- Resistors
- Capacitors
 - Formed Caps
 - Failure Mode of Electrolytic Capacitors
- Inductors
 - Coils and Chokes
 - Single and Three Phase Transformers
 - Wye
 - Delta
- RLC Circuits in Series and Parallel
 - Tuned Circuits
 - Harmonics
- Ferro Resonance

How Batteries Work

- Primary and Secondary Batteries
- Lead Acid
 - The Chemistry
 - Battery Types
 - Capacity Factors
 - S-Curves
 - Battery Safety and Maintenance
 - Float and Equalize Voltages
 - Load Testing
- Nickel Cadmium
 - The Chemistry
 - Battery Types
 - Capacity Factors
 - Battery Safety and Maintenance
 - Float and Equalize Voltages
 - Load Testing

Review of Active Components

- Diodes, Transistors, Thyristors, TRIACS, and IGBTs
- Operational Amplifiers

UPS Topologies

- Single and Three Phase

Troubleshooting & Maintenance

Manufacturer's Recommended Maintenance Practices

- Installation
- Quarterly and Annual Checklists
- Tools and Equipment
- Electrical Safety

SEMINAR FEE & AGENDA

This 2-day course is just \$1195 (Earn 1.6 CEUs)

7:30 am	Registration
8:00 am	Class Begins
12:00 -1:00 pm	Lunch (on your own)
4:30 pm	Class Ends

NO RISK REGISTRATION & MONEY-BACK GUARANTEE

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.

JOIN OUR CLASSROOM SEMINARS FROM VIRTUALLY ANYWHERE

live.tpctraining.com/simulcast

Our simulcast option allows students to connect to a live classroom seminar via a web link, with the ability to participate fully in the classroom dialogue, exercises, and Q&A. Online participants get all the benefits of the full classroom experience, plus the convenience of remote access.

Features include

- Two full days of live, interactive instruction from a TPC Training instructor
- All classroom materials in PDF format
- Certificate of completion for 16 hours of live training
- Full technical support to ensure your online experience is a rewarding one

BRING THE TRAINING ON-SITE TO YOUR FACILITY

live.tpctraining.com/on-site

Every public seminar class in our Course Catalog can be conducted on-site, with the same expert instructors. To arrange an on-site training, call or email us at onsite@tpctraining.com.

Some Advantages of On-Site Training

- Cost Savings — Save time and travel costs by keeping workers on-site
- Customized Content — Tailor the seminar to your facility and equipment
- Flexibility — Accommodate multiple shifts and different start and end times

