

Learning Objectives:

- The different types of motors and their applications
- Reading and understanding a motor nameplate
- Selecting the right motor for the job
- Properly installing or replacing a motor
- Problems in switching out a motor without understanding why it failed
- Importance of proper lubrication of bearings
- Getting maximum life out of your motors
- Reading and drawing electrical control circuits
- Control circuit design for most motor applications
- Using electrical drawings for troubleshooting
- Finding and permanently fixing motor & control circuit problems

Electric Motors & Motor Control Circuits

Designed to help students reduce downtime caused by motor failure and increase the overall efficiency



"I will recommend this class to my colleagues"

Mike T. - Engineer



Day 1 - Motor Replacement, Maintenance & Testing

Day 2 - Working with Control Circuits

- 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

This course tackles the common problem of electric motor failure, with the goal of helping technicians identify the true cause of motor failure and prevent future incidents. The course proceeds from a thorough overview of motor basics to replacement procedures and fundamental motor maintenance techniques. We then cover both basic and specialized motor control circuits. The course is designed to help students reduce downtime and expense caused by motor failure and increase the overall efficiency of their facility.

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.

 ***"Great course and easy to understand"***
Wade M. - Electrician

DISCUSSION TOPICS

Motor Selection, Maintenance, Testing & Replacement

- Motor basics and terminology
- Types of motors and their applications
- Testing equipment
- Field troubleshooting checklist
- Motor selection
- Nameplate data
- IEC motor ratings
- Energy Considerations

Procedures for Replacing a Motor

- Verifying circuits are de-energized
- De-terminating motors
- Setting replacement motors
- Shaft coupling/alignment options
- Electrical checks
- Sizing line conductors
- Using nameplate data for proper connections
- Selecting the best method of motor termination
- Lugs and insulation tapes for termination
- Termination kits
- Methods of verifying proper phase rotation
- Lubrication requirements
- Sizing fuses and overloads
- Final checks prior to re-energizing motor
- Electrical, visual and mechanical checks for startup testing

Motor Maintenance

- Testing motor windings
- Megohmmeter testing of motors
- Modern, state-of-the-art predictive maintenance testing for motors
- Bearings and lubrication
- Motor storage
- Replacing motor fuses safely and correctly
- Determining voltage and current imbalance and its effects
- Recommended maintenance practices of NFPA 70B
- Sizing and adjusting overloads per the NEC®
- Common motor problems and how to fix them

Working with Control Circuits

- Fundamentals of control circuits
- Types of motor control
- Symbols for control
- Learn to read motor control schematic and ladder diagrams
- In-depth class exercises with real-world motor control diagrams
- Learn the basics of PLC ladder logic
- Developing a logical, systematic approach to troubleshooting controls
- Typical control circuit problems and how to find and fix them

Motor Drives and Special Control Circuit Applications

- Energy Management and motor drives
- AC and DC drives overview
- Motors for Variable Speed Drives
- Variable Speed Drive Applications
- HVAC applications
- Servo motors and drives for manufacturing
- Review operation of modern automation control such as conveyor drives

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

