

Maintenance Technician Electrical (MTE) Training Program Summary

The following is a list of core courses included in the Maintenance Technician Electrical (MTE) Training Program.

INTRODUCTION & BASIC MATH

- Rea5 – Study Skills
- Maintenance Principles
- TRB1 – Maintenance Troubleshooting Procedures
- MAT1 – Whole Numbers
- MAT2 – Fractions
- MAT3 – Decimals
- MAT4 – Algebra

PRINT READING

- TPC/PRT – Reading Schematics & Symbols

SAFETY & HEALTH

- Personal Protective Equipment: Don't Start Work W/O It
- Lockout/Tagout: Lightening In A Bottle
- Electrical Safety: Beware the Bite
- ArcFlash: Live To Tell
- Machine Guarding: Safeguarding Your Future
- HazCom: In sync with GHS
- OSHA 10 HR General Industry

BASIC ELECTRICITY / ELECTRICAL MEASUREMENTS

- ELS1 – Industrial Electricity Basic Principles
- ACDC1 – Current
- ACDC2 – Voltage
- ACDC3 – Resistance
- ACDC4 – Ohm's Law
- ACDC5 – Magnetism
- ACDC6 – Electrical Measurements
- ACDC10 – AC Measurements
- TPC/EM – Electrical Measuring Instruments

DC CIRCUITS / FUNDAMENTALS

- ACDC7 – DC Circuits
- ADC2 – Ohm's Law & DC Circuits
- ADC3 – Electronic Components and Magnetism
- ADC4 – Electronic Schematics and Circuit Analysis

AC CIRCUITS / TRANSFORMERS

- ELS2 – Industrial Electricity: Alternating Current
- ELS3 – Industrial Electricity: Conductors
- ACDC8 – Inductance & Capacitance
- ACDC11 – Capacitive Circuits
- ACDC12 – Inductive Circuits
- ACDC 13 – Transformers
- ACDC 14 – Tuned Circuits

MOTOR DRIVES

- MTD1 – Motor drive identification
- MTD2 – Open and Closed Loop Systems
- MTD3 – Variable Speed AC Drives
- MTD4 – Servo & stepper motors
- MTD5 – AC Motor Operation
- MTD6 – AC Drive Selection and Setup
- INS6 – Operator Inspection: Motor Drive System Inspection

AC/DC EQUIPMENT & CONTROLS

- ELS6 – Industrial Electricity: Generators and Motors
- ELS 7 – AC Motor Control and Current Measurement
- DCM1 – DC Motors: Basics and parts of DC Motors
- DCM2 – DC Motors: wiring diagrams and troubleshooting
- DCC1 – DC Motor Controllers – Controller Function and Operation
- DCC2 – DC Motor Controllers – maintenance and troubleshooting
- INS5 – Operator Inspection: Electrical Equipment Control System Inspection

MOTOR CONTROLS

- MTR1 – Basic Motor Controls & Relays
- MTR2 – Overload Protection Devices
- MTR3 – Motor Controls: Time delay relays
- MTR4 – Motor Controls: Schematics/Symbols
- MTR5 – Motor Control: Schematics and Wiring Diagrams
- MTR6 – Motor controls: starting methods for squirrel cage motors
- MTR7 – wye-delta, synchronous, & wound rotor controls
- MTR8 – Motor controls: installing/troubleshooting
- TRB3 – Troubleshooting: Motors and Motor Controls

POWER SUPPLIES

- ELS4 – Industrial Electricity: Wiring
- ELS5 – Industrial Electricity: Installation, distribution, lighting
- TRB2 – Maintenance Troubleshooting: Power distribution & lighting systems

CONTROL VALVES/ACTUATORS

- CVA1 – Control valves & actuators: basics & functions*
- CVA2 – types and design*
- CVA3 – fundamentals and selection*
- CVA4 – sizing and installation*

ELECTRONIC COMPONENTS & CIRCUITS

- BEC1 – Basic Electronic components: types and diagrams
- BEC2 – Basic Electronic controls and applications
- BEC3 – Basic Electronic operation and troubleshooting
- EC11 – Electronic circuits: basic principles
- EC12 – Electronic circuits: characteristics and operation
- EC13 – Electronic circuits: logic fundamentals, types & application
- EMS1 – Electronic Maintenance: solid state devices*
- EMS2 – Integrated Circuits and Op Amps*
- EMS3 – Sensor & Transducer Principles*
- EMS4 – Transmitters*
- EMS5 – Transducers*
- EMS6 – Controllers, Indicators, & Recorders*
- MEC1 – Mech. Electrical Control: Intro to Control Schematics
- MEC2 – Creating Schematics
- MEC3 – Electrical Lockout
- MEC4 – Design and Troubleshooting
- MEC5 – Energy Management
- MEC6 – Electronic Controls
- MEC7 – Responsive Systems

PROGRAMMABLE LOGIC CONTROLLERS (PLCs)

- PLC1 – Fundamentals
- PLC2 – Programming
- PLC3 – Inputs and outputs
- PLC4 – Troubleshooting
- PLC5 – Communications & Advanced Programming
- RSX1 – Configuring Hardware and Software
- RSX2 – Programming and Editing
- RSX3 – Testing / Troubleshooting Functions

MEASUREMENT / INSTRUMENTATION

- PME1 – Temperature Measurement: thermometers and thermocouples*
- PME2 – Temperature: Resistance & Radiation Devices*
- PME3 – Pressure Measurement: manometers and gages*
- PME4 – Pressure: Indicators and Transmitters*
- PME5 – Level Measurement: measurement & gages*
- PME6 – Level: indicators and transmitters*
- PME7 – Flow Measurement*
- PME8 – Flow Sensors*
- CTE1 – Primary Calibration standards*
- CTE2 – Pneumatic Test Equipment*
- CTE3 – Electronic Test Equipment*
- CTE4 – Oscilloscopes*
- CTE5 – Instrument Errors*
- CTE6 – Instrument Calibration*

PROCESS CONTROL / INSTRUMENTATION

- BPR1 – Basic Process Control: Feedback Control*
- BPR2 – Basic Process Control: Process Control Modes*
- BPR3 – Basic Process Control: Process Characteristics*
- BPR4 – Basic Process Control: Process Variables*
- BPR5 – Instrumentation Symbols*
- BPR6 – Instrumentation Loop Diagrams*
- BPR7 – Piping and Instrumentation diagrams*
- BPR8 – Mechanical Connections*
- BPR9 – Electrical Connections*

BASIC MECHANICAL

- *We also recommend that Electrical Maintenance Technicians (MTE) complete a series of basic mechanical maintenance courses.*

Text / Reference Materials: *To supplement online training.*

1. Troubleshooting Electrical/Electronic Systems, ATP
2. Technical Print Reading, Schoolcraft
3. Millwright & Mechanics Guide, Audel
4. Additional titles available as appropriate

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