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**Industrial Maintenance Electrical**

**Training Program Summary**

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

**INTRODUCTION & BASIC MATH -** $140, 13 hrs

* Rea5 – Study Skills
* MPR1 - Maintenance Principles
* TRB1 – Maintenance Troubleshooting Procedures
* MAT1 – Whole Numbers
* MAT2 – Fractions
* MAT3 – Decimals
* MAT4 – Algebra

**PRINT READING** - $150, 20 hrs

* TPC102 – Reading Schematics & Symbols

**SAFETY & HEALTH** *-* $280, 22hrs

* PPE7 - Personal Protective Equipment: Don’t Start Work Without It
* LOT9 - Lockout/Tagout: Lightening In A Bottle
* ELE5 - Electrical Safety: Beware the Bite
* MAC0 - Machine Guarding: Safeguarding Your Future
* HAZ2 - HazCom: In Sync with GHS
* ELE0 - ArcFlash: Live To Tell
* OSHA 10 HR General Industry

**BASIC ELECTRICITY/ELECTRICAL MEASUREMENTS** - $310, 36hrs

* ELS1 – Industrial Electricity Basic Principles
* ACDC1 – Current
* ACDC2 – Voltage
* ACDC3 – Resistance
* ACDC4 – Ohm’s Law
* ACDC5 – Magnetism
* ACDC6 – Electrical Measurements
* ACDC10 – AC Measurements
* TPC204.1– Electrical Measuring Instruments

**DC CIRCUITS / FUNDAMENTALS** - $80, 8 hrs

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

**AC CIRCUITS / TRANSFORMERS**- $140, 14 hrs

* 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** - $140, 14 hrs

* 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** - $140, 14 hrs

* 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** - $180, 18 hrs

* 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** - $60, 6 hrs

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

**CONTROL VALVES** - $120, 8 hrs

* CVA1 - Control Valves & Actuators: Basics & Functions\*
* CVA2 - Control Valves: Types and Designs\*
* CVA3 - Control Valves: Fundamentals & Selection\*
* CVA4 - Control Valves: Sizing & Installation\*

**ELECTRONIC COMPONENTS & CIRCUITS** - $440, 38 hrs

* BEC1 – Basic Electronic components: types and diagrams
* BEC2 – Basic Electronic controls and applications
* BEC3 – Basic Electronic operation and troubleshooting
* ECI1 – Electronic circuits: basic principles
* ECI2 – Electronic circuits: characteristics and operation
* ECI3 – 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 – Mechanical 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)** - $160, 16hrs

* 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** - $360, 28 hrs

* 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** - $270, 18 hrs

* 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 – Basic Process Control: Instrumentation Symbols\*
* BPR6 – Basic Process Control: Instrumentation Loop Diagrams\*
* BPR7 – Basic Process Control: Piping and Instrumentation diagrams\*
* BPR8 – Basic Process Control: Mechanical Connections\*
* BPR9 – Basic Process Control: Electrical Connections\*

**\* = Premium courses**

**Total Hours: 273**

**Total Cost: $2970** (does not include text / reference materials)

**OPTIONAL Text / Reference Materials:** *To supplement online training.*Troubleshooting Electrical/Electronic Systems, ATP
Technical Print Reading, Schoolcraft Millwright & Mechanics Guide, Audel
Additional titles available as appropriate

<https://www.amazon.com/Troubleshooting-Electrical-Electronic-Systems-Mazur/dp/0826917917>

Reading Technical Diagrams <https://schoolcraftpublishing.com/course_preview/712/index.html?page=1>

**\*Student/Company will order materials directly**

**\*Prices are subject to change with 30-day notice**

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