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**On-Line Industrial Maintenance Technician Electrical Training Program Summary**

**INTRODUCTION -** $60, 5 HRS

* Rea5 – Study Skills
* MPR1 - Maintenance Principles
* TRB1 – Maintenance Troubleshooting Procedures

**BASIC MATH** - $80 8 HRS

* MAT1 – Whole Numbers
* MAT2 – Fractions
* MAT3 – Decimals
* MAT4 – Algebra

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

* TPC102 – Reading Schematics & Symbols

**SAFETY & HEALTH** *-* $120, 12 HRS

* 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 HOUR GENERAL INDUSTRY** - $150, 10 HRS

**BASIC ELECTRICITY/ELECTRICAL MEASUREMENTS** - $160, 16 HRS

* 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** - $150, 20 HRS

**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 HRSs

* 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

**Total Hours: 273**

**Total Cost: $2,960**

Prices are subject to change with 30-day notice

**Kent State University Regional Workforce Development**

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