Kentucky CTE

Advanced Manufacturing: Industrial Maintenance Technology: Electrical Components (Ind. Maint.) 470358 (2026–2027)

Practice and perform safe shop procedures at all times. 1	1 Practice and perform safe shop procedures at all times. 1
Apply the technical math required for employment opportunities in maintenance. 2	2 Apply the technical math required for employment opportunities in maintenance. 2
Perform all duties with emphasis on integrity, responsibility, quality, discipline and teamwork. 3	3 Perform all duties with emphasis on integrity, responsibility, quality, discipline and teamwork. 3
Measure voltage with digital and analog voltmeters. 4	4 Measure voltage with digital and analog voltmeters. 4
Measure AC current with a clamp-on ammeter. 5	5 Measure AC current with a clamp-on ammeter. 5
Measure resistance with an ohmmeter. 6	6 Measure resistance with an ohmmeter. 6
Check winding ins me	7 Check winding insulation with a megohmmeter. 7

Skip to main content

Check voltage with a voltage test. 8	8 Check voltage with a voltage test. 8
Use a continuity tester to determine whether an open circuit exists. 9	9 Use a continuity tester to determine whether an open circuit exists. 9
Use a capacitance meter to measure the capacitance of both run and start capacitors. 10	10 Use a capacitance meter to measure the capacitance of both run and start capacitors. 10
Define watts, ohms, volts, and amps. 11	11 Define watts, ohms, volts, and amps. 11
Define and compare single and multi-phase voltage and current. 12	12 Define and compare single and multi-phase voltage and current. 12
Demonstrate proper use of ohmmeter, ammeter, and voltmeter. 13	13 Demonstrate proper use of ohmmeter, ammeter, and voltmeter. 13
Calculate electrical circuit loads. 14	14 Calculate electrical circuit loads. 14
Use appropriate meters to check fuses and breakers. 15	15 Use appropriate meters to check fuses and breakers. 15
Use the appropriate meter to determine wattage, resistance, voltage, and amperage. 16	16 Use the appropriate meter to determine wattage, resistance, voltage, and amperage. 16
Interpret tables and charts from the National Electrical Code (NEC). 17	17 Interpret tables and charts from the National Electrical Code (NEC). 17
Figure wire sizes and voltage drop. 18	18 Figure wire sizes and voltage drop. 18
Dr tra	Draw and identify power transformer types. 19

Skip to main content

Use electrical meters appropriately to test and identify voltages and phases. 20	**20 Use electrical meters appropriately to test and identify voltages and phases.** 20
Size and test fuses and breakers and safely replace them. 21	**21 Size and test fuses and breakers and safely replace them.** 21
Use NEC tables to size EMT. 22	**22 Use NEC tables to size EMT.** 22
Define relays, sequencers, contractors, capacitors, defrost timers, crankcase heaters, water valves, damper actuators, thermostats, controllers, rheostats, zone valves, and solenoids. 23	**23 Define relays, sequencers, contractors, capacitors, defrost timers, crankcase heaters, water valves, damper actuators, thermostats, controllers, rheostats, zone valves, and solenoids.** 23
Explain the operation and application of split-phase motors, three-phase motors, variable speed motors, shaded pole motors, and permanent split capacitor motors. 24	**24 Explain the operation and application of split-phase motors, three-phase motors, variable speed motors, shaded pole motors, and permanent split capacitor motors.** 24
Demonstrate proper use of testing equipment for motors. 25	**25 Demonstrate proper use of testing equipment for motors.** 25
Interpret detailed instructions for wiring circuits. 26	**26 Interpret detailed instructions for wiring circuits.** 26
Draw electrical circuits in accordance with standard wiring procedures. 27	**27 Draw electrical circuits in accordance with standard wiring procedures.** 27
Wi cir Skip to main content	**Wire actual electrical circuits from wiring diagrams.** 28

diagrams. 28

Demonstrate the use of basic electrical meters by wiring and testing actual circuits. 29	29 Demonstrate the use of basic electrical meters by wiring and testing actual circuits. 29
Explain the use of various electrical components in HVACR. 30	30 Explain the use of various electrical components in HVACR. 30
Interpret schematic wiring diagrams into a sequence of operations for HVACR equipment. 31	31 Interpret schematic wiring diagrams into a sequence of operations for HVACR equipment. 31
Analyze the electrical performance of each component and control. 32	32 Analyze the electrical performance of each component and control. 32
Rewire an HVACR unit using a schematic diagram. 33	33 Rewire an HVACR unit using a schematic diagram. 33
Develop an approved routine for electrical troubleshooting. 34	34 Develop an approved routine for electrical troubleshooting. 34
Use electrical test instruments appropriately to test and correct the performance of electrical systems. 35	35 Use electrical test instruments appropriately to test and correct the performance of electrical systems. 35