



21740 State Route 676, Marietta, Ohio 45750

Adult Technical Training
Phone: 740.373.6283
Toll Free: 800.648.3695
Fax: 740.376.2240
www.mycareerschool.com

Industrial Maintenance - Industrial Electrical Controls Fundamentals

176 Hour Training

Instructors: Pat Hulsey, Jack DeVol, Brad Griffin

Total Cost: \$26,400

\$5280 per student based on 5 students (Minimum headcount). Cost will be divided progressively per student with a maximum headcount set at 12. Cost per student at 12 students would be \$2200.

Credentials and Certifications: Washington County Career Center Certificate of Completion

Training Outline:

Math and Electrical Prints 48

1. Understand and solve common electrical math calculations and problems involving decimal and whole numbers, fractions, percent, ratios, and proportions.
2. Solve formulas and simple first-order algebraic equations; use the quadratic formula to solve second-order algebraic equations with one unknown.
3. Discuss and apply basic trigonometry as applied to right triangles, including the sine, cosine, and tangent trigonometric functions.
4. Read and apply information from tables and various types of graphs, including pie charts, bar graphs, and line graphs.
5. Read and interpret typical home blueprint electrical drawings by the use of a set of working blueprints, an architect's scale, drawing symbol table, drawing schedules, and specifications.
6. Explain the types of drawings, including pictorial and isometric views; plans, elevations, sections, and details; and schedules.
7. Perform an electrical drawing material take-off and prepare a materials list.

DC Electricity 20

1. Describe the theory of electron movement.
2. Explain Ohm's Law and the Power Equation
3. Explain the basics of Magnetism.
4. Identify resistance and wattage of resistors.
5. Describe the basics of DC Series Circuits
6. Perform DC Series Circuit Calculations.
7. Describe the basics of DC Parallel Circuits.
8. Perform DC Parallel Circuit Calculations.



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AC Electricity 20

1. Explain the property of Inductance.
2. Discuss RL Series Circuits.
3. Discuss RL Parallel Circuits.
4. Explain the property of Capacitance.
5. Discuss RC Series Circuits.
6. Discuss RC Parallel Circuits.
7. Discuss AC RLC Circuits.

Commercial Wiring and Prints 40

1. Perform commercial electrical load calculations per the National Electric Code (NEC).
2. Perform branch-circuit overcurrent protection device and conductor size calculations per the NEC, including derating the ampacity for the actual installation conditions and details.
3. Properly size electrical feeder circuits, including ampacity derating, sizing the neutral conductor for unbalanced and non-linear loads.
4. Explain the markings for insulation type and voltage rating on conductors and be able to look up in the NEC the various insulation codes and the uses where they are appropriate.
5. Perform basic conduit bending types: stub-up, offset and saddle bends to a high degree of accuracy and in compliance with NEC requirements.
6. Explain the various types of conduit types and be able to look up in the NEC the uses where each type is appropriate.
7. Properly install home wiring electrical circuits to NEC standards; test and troubleshoot these circuits. Explain safety precautions for this work.
8. Properly install commercial electrical wiring circuits in conduit; test and troubleshoot these circuits. Explain safety precautions for this work.
9. Read and interpret commercial electrical blueprints.

Motor Controls 24

1. Identify the components of a motor control starter
2. Size motor power and control wiring, circuit breaker, and overloads per NEC standards
3. Wire and test a motor control start/stop control circuit
4. Wire and test a reversing motor control forward/reverse/stop circuit
5. Wire and test a motor control circuit utilizing control relays, timing relays and Programmable Logic Controller



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6. Troubleshooting motor control circuits

Motor Drives and Troubleshooting 24

1. Variable frequency drives
2. Motor control troubleshooting

Washington County Career Center, Adult Technical Training is Accredited by Accrediting Commission for Career Schools and Colleges (ACCSC). ACCSC holds accreditation with US Dept. of Educ. ACCSC sets multiple Standards of Accreditation by which WCCC must comply to ensure quality programs, experienced instructors, optimal graduation rates, and preferred job placement rates.