ACCELERATED TRAINING INSTITUTE

Online Training and Certification in Trade Skills Knowledge

ELECTRICAL TECHNICIAN COURSE OUTLINE

25 Instruction Hours • 62.5 Study Hours • Self-paced-completed within 1 to 12 Months
No Prerequisites • Certificate in Electrician Theory • Distance education—delivered by video instruction with instructor support available by email or phone.
Online exam only—no hands-on skills assessment

This comprehensive, knowledge-based Electrical Course teaches all aspects of the electrical trade. Students will study everything from electrical theory and the National Electrical Code® to blueprint reading, residential wiring, electronic control systems, motors and much more. Foundational principles of electricity, such as electric current, Ohm's Law, and circuits are explained in detail. Students learn the tools of the trade, and critical safety procedures . How to install the residential electrical components are demonstrated in detail, including such items as device boxes, raceways and fittings, fasteners and anchors, conductors and cables and more. The course also includes electrical troubleshooting and repair. Students study and complete the course at a pace they control. Students must study with sufficient retention of the knowledge to pass their exams with a score of 80% or higher.

Completion of this Electrical Course prepares individuals for entry-level electrical trade workers, maintenance employees and do-it-yourself home owners; or to enter employment in such positions as Maintenance Electrician, Electrician Assistance and the electrical work involved in General Maintenance and Repair positions such as Maintenance Mechanic, Facilities Maintenance Technician, and Building Maintenance and Repair Technician.

- ***This course is not intended to lead to becoming a Licensed Electrician.***
- *Certificates of this School do not qualify an individual to work as a licensed Electrician, or as a licensed Contractor.*
- *General Maintenance and Repair (SOC 49-9071 US Department of Labor), is a non-licensure occupational classification as are various trade assistant jobs in electrical (See Standard Occupational Classifications 47-3013, 49-904271, 47-3019 and 49-9799 US Department of Labor.)*
- *For more occupational information on these and related SOC's go to: www.blw.gov or www.onetonline.org.)*
- *Only employees working on their employer's premises, or individuals working on their own residence, may perform electrical work without a Journeyman or Contractor's License. A self-employed individual may not perform any electrical work (except on their own residence) without an Electrical Contractor's License. Additionally, maintenance employees are prohibited from certain types of electrical work without a license (e.g., electrical tasks such as adding new circuits or installing additional switches). Permissible tasks are repairing and replacing of existing electrical systems, operating electrical systems, and working directly with licensed Electrical Journeymen.*
- *In order to become a licensed Electrician, an individual must be at least 16 years of age, register as an apprentice electrician, be employed by a licensed Electrical Contractor, complete work under constant supervision of a licensed Electrician Journeyman or Master employed by the Electrical Contractor, and be enrolled in or have completed a four-year training program at an approved school. In order to become a licensed Journeyman Electrician, an individual must have completed 8,000 hours of qualified electrical work as a registered apprentice under the constant supervision of a licensed Journeyman or Master Electrician, and passed the licensure exam.*
- *For more information, go to http: // dbs.idaho.gov.*

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ELECTRICAL TECHNICIAN COURSE OUTLINE (CONTINUED)

EQUIPMENT AND MATERIALS USED IN THIS COURSE

An internet-capable computer, internet connection, web browser, textbook, online examinations and information.

CURRICULUM

Note: This curriculum references only key instructional content and is not inclusive of the entire curriculum. For the complete curriculum, request the Course Syllabus.

UNIT 1

- Safety
- Hand tools
- Power tools
- Specialized tools
- The National Electric Code
- Electrical boxes {device boxes)
- Plastic boxes
- Metal boxes
- Inserting conduit
- Cable clamps
- Bending conduit

UNIT 2

- Cutting pipe
- Offset bends
- Measuring conduit
- Parallel offsets
- Laying out the pipe
- Fabricating saddle bends
- Bending conduit for 3-saddle bend
- More benders
- Cutting conduit
- Threading conduit

UNIT 3

- Raceways
- FMC in NEC
- Liquid Tight Flexible Conduit {LFMC)
- PVC
- LFNC: 356
- Conduits
- Raceways
- Fasteners, anchors, bolts
- Drilling through studs
- Running wire

UNIT 4

- Installation of conduit, boxes, fittings, wiring
- Conductors:
- Cables
- Conductor selection
- Wire sizes
- Insulation
- Color coding
- Installing wire

UNIT 5

- Terminating wire
- Wire bends
- Stripping and Crimping wire
- Splicing wires in a J-box
- Terminating wire and switches
- Ground fault circuit interrupter {GFCI)
- Terminals
- Troubleshooting series circuits
- Parallel circuits
- Combination circuits

UNIT 6

- Atomic Theory
- Bump theory for conductors
- Insulators
- Summary
- General electrical theory
- Ohm's Law
- Series circuits

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ELECTRICAL TECHNICIAN COURSE OUTLINE (CONTINUED)

UNIT 7

- Magnetism
- Electro magnets
- Induction
- Magnetic devices
- Electric motor Devices
- Transformers
- A.C. Theory
- Alternator
- AC vs DC
- Converting AC to DC
- Diodes and rectifiers

UNIT 8

- Inductors
- Lenz's Law
- Impedance
- Inductive phase shift
- Capacitors
- RC circuits
- Farads
- Capacitors in series and parallel
- Capacitive reactance
- Voltage and current phase relationship

UNIT 9

- Conductors: sizing wire
- Wire resistance single phase
- Wire resistance three phase
- Taps
- Parallel conductors
- Insulation testing
- Ampacity
- Service Equipment
- NEC requirements for dwelling units
- GFCI receptacles
- Assigning circuits
- Location of installation of service equipment

UNIT 10

- Service panel set up
- Load calculation
- Sizing the wire
- Grounding systems
- Over current devices
- AFCI
- Multi-wire circuits
- Building sequence
- Sizing feeder wire
- Wiring

UNIT 11

- Control systems and fundamental concepts relays
- Motor controller
- Ladder diagram
- Programmable Logic Controller (PLC)
- Electric motors
- DC motors
- Universal motors
- Stepping motors
- Single-phase-AC and 3-phase motors

TESTING AND CERTIFICATE REQUIREMENTS

When you complete the video instruction in the Electrical Course, you will take an online examination to test your knowledge. Also, for each of the assigned chapters in your Electrical textbook, you may optionally complete an end-of-chapter quiz. Quizzes are optional study tools to support passing your final exam. Exams are online, not timed, and are open book, open video. Once started, an online exam may be suspended but must be completed within 60 days. When you pass your final exam with a score of 80% or higher, you will receive an Electrician Theory Certificate.