



**IEC
PENNSYLVANIA**



**"GO TO COLLEGE. GET A BACHELORS
DEGREE."**

NOT FOR YOU?

Amplify Your Potential

with an Electrical Apprenticeship

FOR MORE INFORMATION CONTACT:

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THE TOP BENEFITS OF AN ELECTRICAL APPRENTICESHIP:

SAVE TIME: You can become an electrician in just 4 years.

HIGH DEMAND: Over 70% of Trades companies are having trouble finding workers.

HIGHER PAY: Average Trades salary, \$55,190.
Average U.S. worker, \$38,640.

SAVE MONEY: Average B.S. Degree cost = \$127,000
IEC Apprenticeship Program Tuition = **FREE**

GET PAID TO LEARN: Shadow some of the best Electricians in the area.

SMALLER CLASSES: Get the one-on-one attention you deserve



IEC'S APPRENTICESHIP PROGRAM

WHAT WILL YOU LEARN?

Year One	Year Two	Year Three	Year Four
<ul style="list-style-type: none"> • CPR & First Aid • Hand Tools • Assessment Inventories • General Information-Electrical installations, introduction to electricity, whole numbers, fractions • Electrical Symbols + Outlets • Circuit Theory • Decimal Fractions • Lighting + Appliance Circuits • Static Electricity • Percentages, Averages • Conductor Sizes + Types, Wiring • Basic Circuits • Powers + Roots • Switch Control, Receptacles Bonding, etc. • Magnetism • Measurements • Ground Fault Protection • Resistors • Ratio + Proportion • Lighting Fixtures • Ohms Law – Series Circuits • Formulas • Bedroom Lighting • Parallel Circuits • Lighting Branch Circuits • Using Fractions in Current Dividers 	<ul style="list-style-type: none"> • Printreading- Basic Concepts, Brick Veneer Residence • Printreading- Construction Materials • Printreading- Light Frame Construction • Printreading- Wendy's Restaurant • Printreading- Veterinary Center • Printreading- Quantity Take Off • NEC Code Study- Chapter 1, Chapter 2, Articles 90, 100, 110, & 200 • NEC Chapter 2, Articles 210, 215, 220, 225, 230, 240, 242, 250 • NEC Chapter 3, Articles 300, 310, 312, 314, 320-393 • Introduction to AC Theory • Inductive and Capacitive Reactance • Impedance and Power Factor • Single-Phase Transformers: Theory, Types & Calculations • Power Generation, Transmission, Distribution: Intro to Three-Phase Calculations • 3 Phase Transformers • Buck-Boost Transformers: Single Phase Connections & Applications • Balancing Three-Phase Loads, Nonlinear Loads, Three-Phase Fault Currents, Voltage Drop • NEC Chapter 4, Articles 400-408, 410, 422, 424, 430, 440, 445, 450, 480 • NEC Chapter 5, Articles 500-510, 511-516, 517-590 • NEC Chapter 6, Articles 600-604, 620-645, 680, 690, 695 • NEC Chapter 7, Articles 700-705, 725, 760 	<ul style="list-style-type: none"> • Test instruments, OSHA, NFPA 70E, Test instrument safety • Introduction to Grounding & Bonding • System Grounding: Separately derived systems, MBI, System Bonding Jumpers • Grounding Electrode Systems & Grounding Electrode Conductors • Supply Side and Load-side Bonding Jumpers • Equipment Grounding & Equipment Grounding Conductors • Grounding of Specific Equipment & Conditions • DC Motors, AC Single-Phase & Poly-Phase Motors • Sizing Motor Branch Circuit Conductors • Sizing Motor Short-circuit & Ground-Fault protection; Locked Rotor Current • Sizing Motor Overloads & Disconnects • Sizing Motor Feeders, OCPD of Feeders with Multiple Motors & Motor Feeder Taps • Adjustable Speed Drive System Code & Introduction to Motor Speed Control Methods • AC Equipment; Fire Pumps • Introduction to Ladder Logic, Pushbuttons, Inputs & Outputs • Manual Control Devices, Automatic Control Devices • Relays, Solid-State Relays, Contactors, Holding Circuits; Timing Relay- On, Interval, Recycle, Off, One-Shot Multifunction • Magnetic Motor Starters Control Circuit • Motor Power Connections, NEMA Enclosures • Motor Reversing Controllers & Connections • Jogging Circuits, Latching Relays, Alternating Relays, Phase Loss Relays • Introduction to Limited Energy/Low Voltage Systems • Productivity-Planning & Organizing • Supervision-Professionalism & Respect 	<ul style="list-style-type: none"> • Energized Electrical Work – NFPA 70e • Introduction to Programmable Logic Controllers and Relays • Introduction to Programming • Variable Frequency Drives (VFDs): Motor Starting Methods, Accelerate/Decelerate • Power Quality & Surge Protection • Intro to Solar Photovoltaic (PV) Systems • Electric Vehicle (EV) Charging • Transitioning to Supervisor • Intro to Limited Energy, Structured Cabling • Home Automation, Audio / Sound, and Video Surveillance Systems • Power over Ethernet (PoE) & Lighting Controls • Intro to Building Automation Systems (BAS) • Fire Alarm Systems & Fire Suppression • Predictive & Preventative Maintenance • Troubleshooting • Using and Applying NEC® 90, 100, 110 • Branch Circuits & Feeders, NEC® 210 215 • Load Calculations, NEC® 220 – Part 1 • Load Calculations, NEC® 220 – Part 2 • Services, NEC® 230 • Conductors & Overcurrent, NEC® 100, 310, 240 • Grounding, NEC® 250 • Wiring Methods, NEC® 300 and 342-356 • Switches, Switchgear, Panelboard NEC® 404 and 408 • Equipment for General Use, NEC® 400, 406, 410, and 422 • Equipment for General Use, NEC® 430, 440, 445, and 695 • Transformers, NEC® 450 and 490 • Special Locations, NEC® 500 - 504, 511, 514, 517, and 590 • Renewable Energy, NEC® 625, 690, 691, 694, 705, and 706 • Local Area Exam Preparation

LET US HELP YOU CREATE A CAREER, NOT JUST A JOB!
FOR MORE FAQs VISIT- <https://www.iecpennsylvania.org/apprenticeship/>