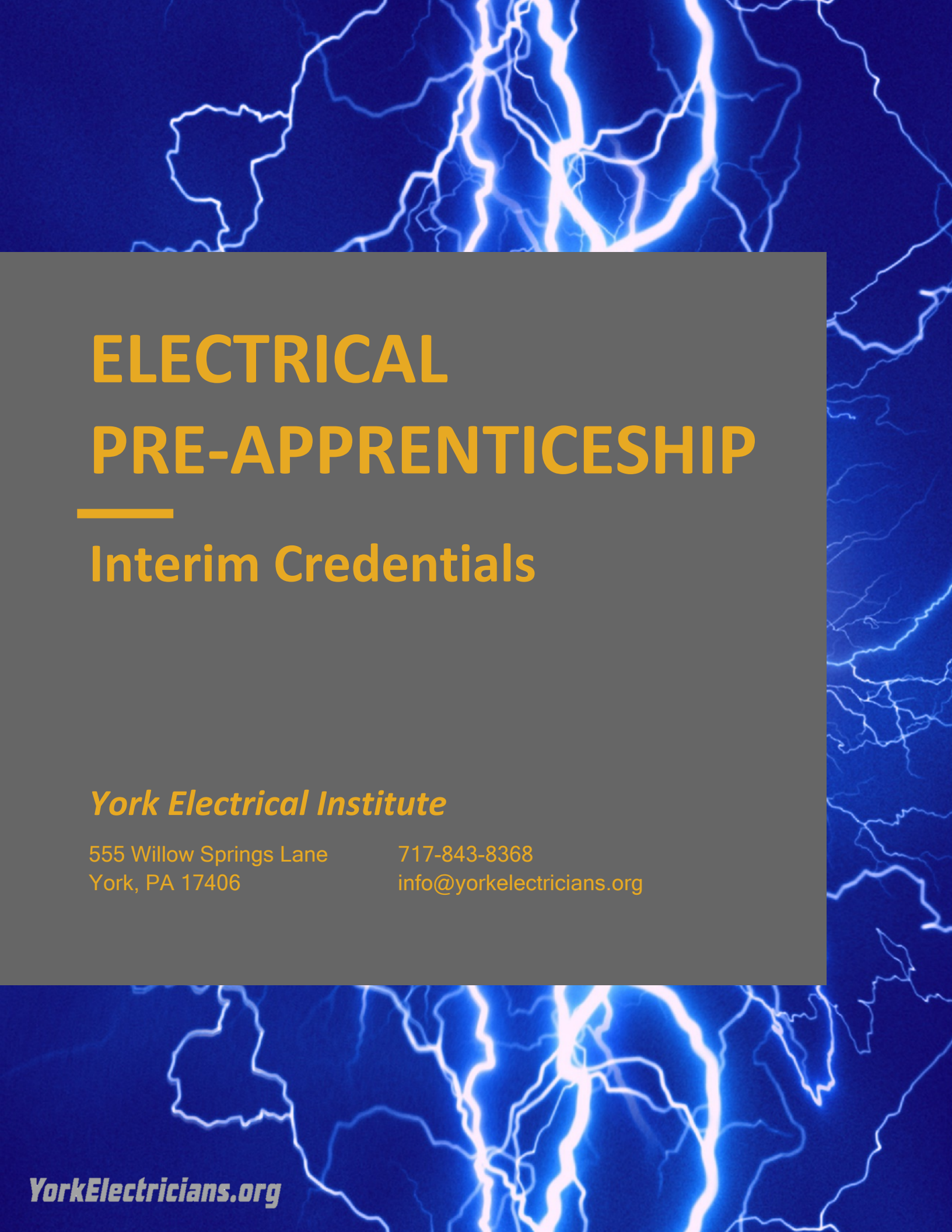


ELECTRICAL PRE-APPRENTICESHIP

Interim Credentials

York Electrical Institute

555 Willow Springs Lane
York, PA 17406

717-843-8368
info@yorkelectricians.org

YorkElectricians.org

York Electrical Institute - Interim Credentials

Course Description

The *Interim Credentials Program* provides an opportunity for students to take apprentice-level courses prior to high school graduation. It utilizes a learning approach that appeals to the high school student through technology-based bite-sized learning and activity assessments that diverts the learner to remediated content or forward progress. The program can be completed asynchronously and, on any computer, or smart device.

This program requires a substantial commitment of time and effort. We recommend beginning this program at the start of a student's senior year to ensure time for completion prior to graduation. The program includes the following courses: Orientation, DC Theory, Blueprints, Codes & Safety, and Job Information. York Electrical Institute will also be holding monthly lab days at our training center to allow participants to complete the associated hands-on applications required of first-year apprentices.

Credentials Earned

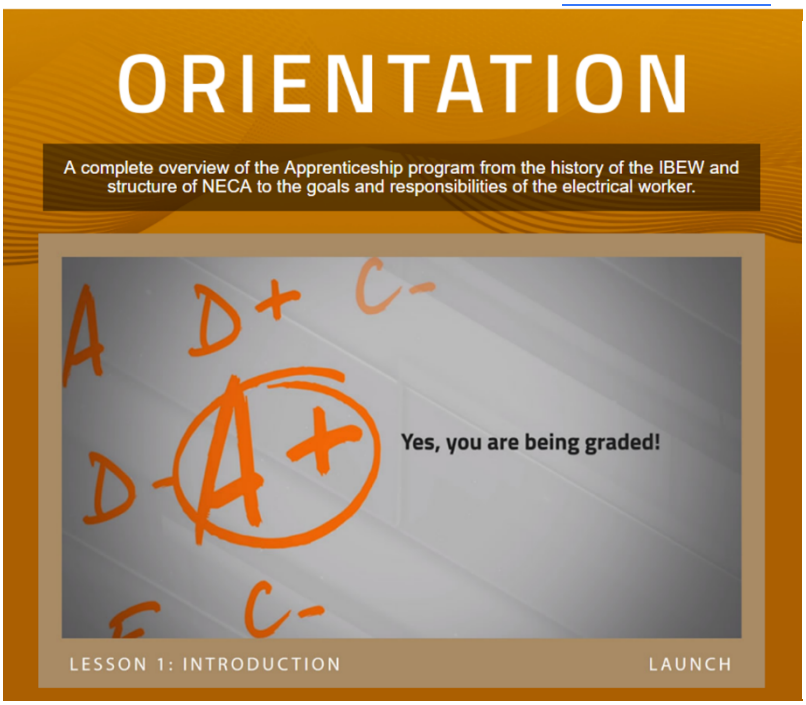
The *Interim Credentials Program* is designed for advanced placement into any of the 270 IBEW/NECA Electrical Training Centers across the United States. Once the student completes the mastery of the *Interim Credentials Program*, along with graduation from high school, they can present the completion certificate to any of these training centers. Upon selection, student can qualify for advanced placement directly into the 2nd academic year of the 5-year electrical apprenticeship. *Final entry into an IBEW/NECA apprenticeship program is dependent on the results of the selection process.*

Students completing the York Electrical Institute – Interim Credentials Program will earn a Certificate of Completion from the electrical training ALLIANCE. Students completing this course will also be Guaranteed an Interview into the Registered Apprenticeship at York Electrical Institute. This course can increase a student's chance of selection since they will have some industry training and a demonstrated interest in the field.

York Electrical Institute - Interim Credentials

Program Syllabus

Orientation

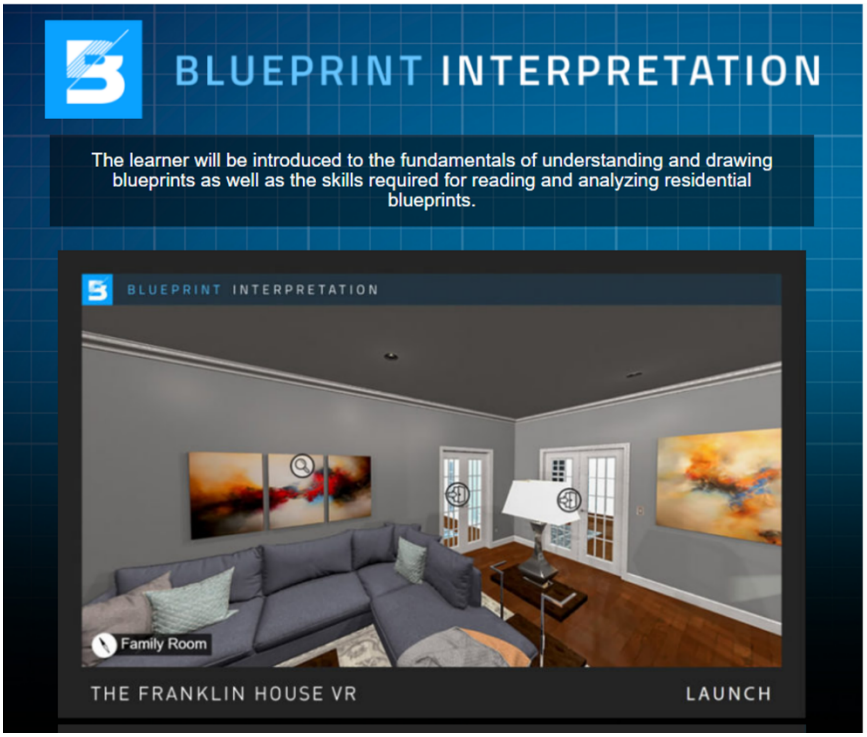


- How to Study/Achieve Goals
- Attributes of an Apprenticeship
- Knowing an apprentice's responsibilities
- Your job benefits and what it holds for you
- Sexual Harassment
- Economics of Employment

DC Theory

- Electrical Basics
- Elemental Electricity
- Series Circuits
- Parallel Circuits
- Combination Circuits
- Circuit Analysis
- Circuit Theory
- Magnetism
- Electromagnetism
- Motors/Generators

Blueprints

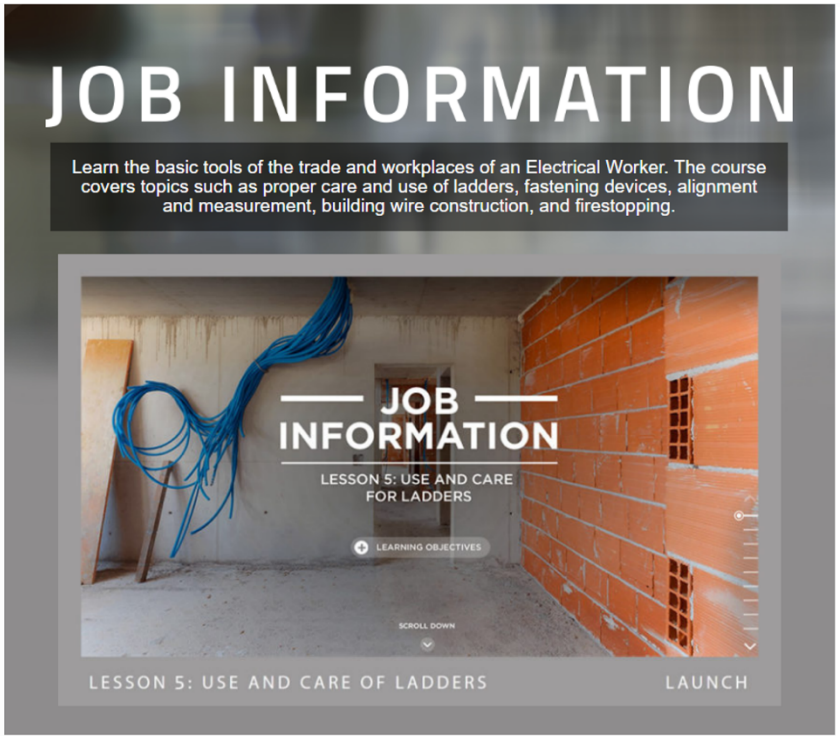


- Drawing/Sketching
- Projections/Perspectives
- Related Math
- Scaling/Dimensions
- Architectural Considerations
- Electrical Symbology
- Mechanical Symbols
- Floor Plans
- Details and Sections
- Schedules and Specs
- Residential Print Reading

Codes & Safety

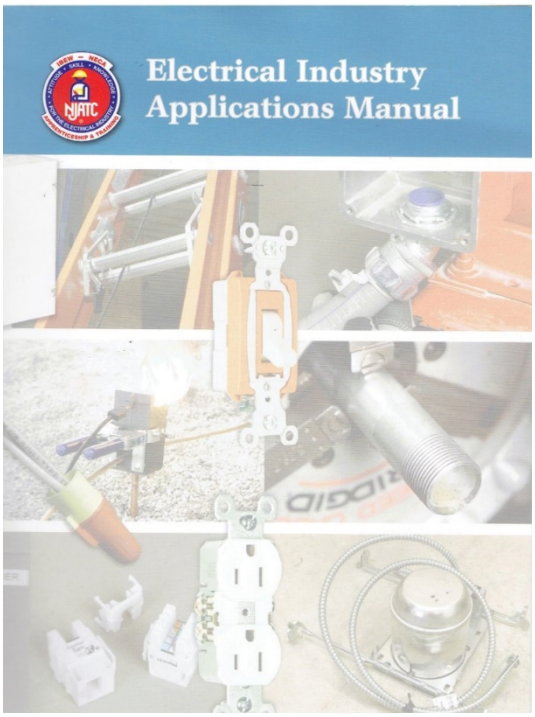
- Safety
- Introduction to National Electrical Code (NEC)
- Interpreting the Language of the NEC
- Understanding and Applying Article 110 of NEC
- Wire and Insulation Properties
- Introduction to Wiring Devices

Job Information



- Tools of the Trade
- Workplace of an Electrical Worker
- Ladders
- Alignment & Measurements
- Fasteners
- Twist-on Wire Connectors
- How Building Wire is Sized
- Identifying Electrical Material
- Working with prefixes in power of 10
- Using the metric system
- Firestopping Applications
- Wire Pulling Techniques.

Applications



- Installing a Switched Duplex Receptacle
- Proper Device Installation Techniques, GFCI Rough-in
- Using Anchors to Install a Metal Enclosure
- Installing a Retrofit “Old Work” Electrical Box
- Hand Bending a box offset
- Cutting a hole in a metal enclosure for and EMT connector
- Mount and Operate a Tugger
- Making Heads (Basket w/ tie wire, strand bending method)
- Install a 3-4-3 way switching system

York Electrical Institute - Interim Credentials

Instructor Bio

Scott Brenneman graduated from Red Lion Senior High School in 1982. He completed his electrical apprenticeship in 1988 and earned the title Journeyman Wireman. Since then, he has worked in a variety of positions within the electrical construction and maintenance industry. Starting as an apprentice, he has worked his way up to journeyman, foreman, general foreman, and supervisor in diverse types of facilities. Scott has worked in manufacturing, health care, industrial, government, and commercial facilities. Scott recently completed his first year of Instructor training at the University of Michigan, Ann Arbor.

About York Electrical Institute

York Electrical Institute is the training provider established through a partnership between International Brotherhood of Electrical Workers Local 229 and the Pen-Del-Jersey Chapter of the National Electrical Contractors Association. Registered with the PA Department of Labor on June 29, 1951, the Institute operates two state-registered apprenticeship programs. It trains approximately 100 post-secondary electrical students per year. It currently employs 16 professional educators with various areas of expertise in its 15,000 square foot training center made up of 5 classrooms and 4 lab areas.

Inside Wireman Job Description

While the Outside Lineman works on the distribution network, bringing power from sources of generation to the customers, the Inside Wireman's job is to distribute and connect the customer's electrical equipment to that power source. The Inside Wireman installs and maintains all of the various types of electrical systems found in commercial and industrial facilities. This equipment may be lighting and receptacles, to motors, to heating equipment, to systems that control the operation of all of a facility's energy usage.

The Inside Wireman installs conduit systems that contain the wire from the motor control centers or panelboards to all of the equipment that uses electricity. Those conduits may contain power cables or control cables. Many of the conduit systems are exposed and must be installed to exacting standards using neat and workmanlike craftsmanship.

The work of an Inside Wireman can vary. One day the Inside Wireman could be installing a Fire Alarm System or Security System in a high-rise building and the next day he or she could be installing conduit in a ditch on the outside of the building. Inside Wireman also install electrical systems in industrial facilities such as chemical plants, power plants, chip manufacturing facilities and automobile plants. Each type of installation has specific electrical needs and systems to support those needs. While there are many tasks associated with the Inside Wireman classification, the apprenticeship training provides all of the knowledge necessary for an individual to perform these tasks in a professional manner while helping the individual to sharpen his or her skills and abilities to be the best workers in the electrical construction and maintenance industry.

The duties of an Inside Wireman are listed below. The number next to each duty is the average of the percentage of journeymen reporting that they perform that task.

99%	Installing New Wiring and Repairing Old Wiring
98%	Installing Receptacles, Lighting Systems and Fixtures
97%	Planning and Installing Raceway Systems
94%	Troubleshooting and Repairing Electrical Systems
92%	Planning and Initiating Project
92%	Supervising Journeymen and Apprentices
88%	Establishing Temporary Power During Construction
88%	Establishing Power Distribution within Project
87%	Establishing Grounding System
86%	Installing Service to Buildings and Other Structures
86%	Providing Power and Controls to Motors, HVAC, and Other Equipment

82%	Installing Fire Alarm Systems
71%	Installing and Repairing Traffic Signals, Outdoor Lighting, and Outdoor Power Feeders
67%	Establishing OSHA and Customer Safety Requirements
67%	Installing Instrumentation and Process Control Systems, Including Energy Management Systems
64%	Erecting and Assembling Power Generation Equipment
57%	Installing Security Systems
56%	Installing, Maintaining and Repairing Lightning] Protection Systems
36%	Installing and Repairing Telephone and Data Systems

Cost Comparison

Traditional 4-Year College vs. 5-Year Apprenticeship

Average Cost of a 4 Year College Degree		Average Cost of an IBEW 5 Year Apprenticeship	
$ 70,000.00	Student Loan @ 7.5% Interest		No cost to students
$ 563.92	Monthly for 20 years		
$ 65,339.66	Paid in Interest		
$ 135,339.66	Total Loan Repayment		

Average Wages you may make if you graduate		Average IBEW Local 229 Wages	
$ -	First 4 Years in College	$ 26,710.00	1st Year Apprentice
$ 240,000.00	at $40,000 per year next 5-10 years	$ 34,580.00	2nd Year Apprentice
$ 300,000.00	at $60,000 per year next 11-15 years	$ 40,860.00	3rd Year Apprentice
$ 400,000.00	at $80,000 per year next 16-20 years *	$ 47,140.00	4th Year Apprentice
	* only about 30% ever make it to this level	$ 53,440.00	5th Year Apprentice
		$ 349,300.00	Journeyworker years 6-10
		$ 374,300.00	Journeyworker years 11-15
		$ 399,300.00	Journeyworker years 16-20

$ 940,000.00	Average total over 20 years	$ 1,325,630.00	Average total over 20 years
$ 135,339.66	Deduct for school	$ -	Deduct for school
$ 804,660.34	20 Year Net Income	$ 1,325,630.00	20 Year Net Income

An IBEW local 229 Electrician makes about $520,970 more during their career than a traditional college graduate.

* apprentice rates based on 2000 hours per year at 6-6-16 pay rates
* journey worker rates based on 2000 hours per year and $0.50 per year pay increase
* fringe benefits are not included
* your results may vary, no guarantee is implied or expressed

YORK ELECTRICAL INSTITUTE – YOUTH PATHWAY

BOOT CAMP

The boot camp can run, as built, as a stand-alone introductory course or used as a suggested/required prerequisite to Interim Credentials. As the Boot Camp is only a six-week course, it could also be run twice a year. Possibly a fall and a winter session.

INTERIM CREDENTIALS

The Interim Credentials (IC) program is an online, self-paced class with instructor mediation to run a full year. Monthly, full day labs over the course of the year will round out the requirements for the completion of first year apprentice. This class is suggested to be for seniors only as they will be ready to enter the work force upon graduation. The college-level curriculum requires a minimum of Algebra 1 prior to entry and includes a substantial amount of homework.

PATH TO APPRENTICESHIP

York Electrical Institute is providing a clear path to apprenticeship with these youth offerings. The Boot Camp will be a recommended prerequisite for the Interim Credentials program and primarily offered to High School Juniors.

Seniors who have previously completed the Boot Camp are encouraged to participate in the Interim Credential (IC) program and earn apprenticeship credit.

We believe this process will allow students to learn more about the electrical industry before committing to the rigorous coursework involved in the IC program. There has never been a better opportunity for students interested in becoming electricians. Graduates of this program will be entering the workforce with valuable practical skills and knowledge truly making them career ready.