Electrical Occupations

Recommended High School Courses/Levels

- Reading level 10.3
- Math Courses
  - Algebra I – First year
  - Geometry – Second/Third year
- Science Courses
  - Chemistry - Second year
  - Physics - Third year

**relates to student's years in program at ICTC and expectations during that year*
**detailed list of math skills noted in academic skills*

Recommendations for Success

- Manual dexterity
- Color vision
- Physical stamina/able to lift 100 pounds
- No fear of heights
- Visualize flow patterns
- Structural mechanical visualization/reasoning
- Excellent eye-hand coordination
- Able to follow written and oral directions
- Able to retain mechanical and structural detail
- Good attendance/homework completion

**This document is strictly intended to provide an overview of the program and to be used as an informative tool. Essentials skills is a tool to assist districts, parents, and students in the decision making process for program decisions, transition planning, and possible placement here at ICTC.*
**This document is not intended to and should not be used as a screening tool for student placement.*

Indiana County Career and Technology Center	Program Area Electrical Occupations
Objective of field	The Electrical Occupations (EO) program enables students to gain the necessary foundation skills to become a residential and/or commercial electrician. This program introduces students to the basics of three-phase wiring for commercial environments and the basics of three-phase wiring for commercial environments.
Classroom Tests	*CEP students – 6 for one semester First year – 20 for the year Second Year – 20 for the year Third Year – 20 or the year *Career Exploration Program offered in 9th grade
Certification Tests	- NOCTI* - PA Skills
Books	2 text Delmar's Standard Textbook of Electricity, 2nd Edition House Wiring 1- Code (NEC-National Electrical Code)
Lecture Time	First Year and CEP students – 110 hours Second year – 110 hours Third year – 110 hours
Co-op/Clinical	- Instructors recommendation - Transportation - ICTC requirements
Homework	- Completion of all homework - Study guides
Task Lists	CEP students – 12 per semester First Year– 48 for the year Second Year – 32+ for the year Third Year – 32+ for the year
Planned Courses	- Safety and Ethics in School and at Work (First year) - Electrical Theory (First, second, and third year) - Care and Use of Hand Tools (First and second) - Low Voltage Circuits (Second year) - Basic Residential/commercial Circuits (Second and third year) - Residential Wiring (Third year) - Structured Wiring (Third year)
Prerequisites	- Hand/eye coordination - Ability to comprehend the abstract - Critical thinking skills
Academic Skills	Reading Level 10.3 *Math Skills - Fractions (add, subtract, multiply, divide) - Decimals - Order of operations - Measurement - Blue prints - Ohm's Law - Watt's Law - Linear/metric measurements/conversion - Circuits (series, parallel, combination) - Angles - Area/surface - Geometric shapes
Soft Skills	Communication
Computer Skills	Basic (Internet, email, and Word)
Physical Requirements	- Lift 100 pounds - No fear of heights - Able to distinguish colors
Vocational Testing Essential Aptitudes for lab recommended levels	- Structural mechanical visualization/reasoning - Discrimination by size/shape - Gross/fine motor skills - Discrimination by touch/color - Manual dexterity - Retention of mechanical and structural detail - Visualization of flow patterns

Job Duties	Wire installation, equipment installation, trouble shooting circuits, electrical layout, NEC interpretation
Training	Focus is on the technical skills required to perform electrical installations. Topics covered include: - calculating conductor sizes and voltage drop - determining circuit requirements - sizing service - grounding service and equipment. Electrical Occupations students will apply electrical standards to appliance circuits, branch-circuit installation, special systems, reading electrical, architectural drawings and calculating circuit loads for on-the-job assessment.
Uniform Requirements	- Closed toe shoes - No loose clothing - Clothing considered "work clothing" able to become dirty or torn - Safety glasses
Articulation/Agreements (refer to course catalog for more)	- Penn College - Full Year – 3 credits per class - Advanced Standing – Pennsylvania College of Technology – up to 15 credits
Employment/Job Outlook	Electricians are expected to have good job opportunities. Jobs for electricians are expected to grow faster than the average for all occupations through the year 2012. There were 659,000 electricians working in 2002. Most worked in construction or maintenance. About 10 percent worked for themselves. The middle half of electricians may earn $14.50 - $26.50 an hour. The lowest-paid 10 percent earned less than $11.81. The highest-paid 10 percent earned more than $33.21. Salary can be in the $27-59,000 range. http://www.careerprospects.org/briefs/EJ/Electricians.sht **Career Opportunities** - Electrician's Helper - Electrician-Residential - Manufactured Housing - Electrician-Commercial * - Electrical Engineer * - Electrician-Maintenance* - Lineman Apprentice * ***Post-secondary education required***
How to find out more?	http://www.ictc.ws/Secondary/eo/p_home.htm US Department of Labor www.bls.gov http://www.careerprospects.org/briefs/E-J/Electricians.shtml http://www.edinformatics.com/careers/kt/electrician.htm

* National Occupational Competency Testing Institute