Program Information & Skill Alignment Chart for:
Electrical Construction Technology – CIP Code 46.0399
Brownstown Campus

Form to be submitted to IU 13 with PIF

Program Description

- Develop skills and knowledge required to install, service and repair electrical systems in residential and commercial settings.
- Develop a working understanding of the National Electric Code.
- Develop safety habits while using tools to complete a variety of tasks directly related to this field.

Program Information (costs, certifications, uniform)

Textbooks- (Provided to Students)

- NCCER Electrical Level 1
- NCCER Core Curriculum
- National Electrical Codebook
- House Wiring Textbook

Uniforms- $100 (approximate) **- Students are required to be in uniform daily**
(Students will need to purchase multiple pairs of pants/shirts to comply with uniform cleanliness standards)

- Garnet Red CTC logo T-shirts and Sweatshirts (link to online store can be found on school website)
- Gray Dickies style work pants
- Leather safety toe work boot with a recommended rating of EH (Electrical Hazard)

Program Opportunities/Certifications

- NCCER Electrical Apprentice Year 1 Certification
- OSHA 10hr
- American Ladder Institute

Program Outline & Pathways

State Program of Study Task Outline

- Safety
- Hand Tools
- Power Tools
- Blueprint Reading
- Anchor and Supports
- Residential Cabling Technology
- Switches and Receptacle Circuits
- Fixtures
- Raceways
- Wired Devices
- Testing Equipment
- Electrical Services
- National Electric Code
- Green Technology
- Career Readiness

Career Pathways

- Commercial/Industrial Electrician
- Electrical Distributor Salesperson
- Line Worker
- Residential Electrical Contractor
- Residential Electrician

Post-Secondary and Continuing Education

- Local or State Colleges (ex: Thaddeus Stevens, Penn College of Technology and HACC)
- ABC Apprenticeship Program
- IBEW Apprentice Program, Local 743

Other Information

- Student / Teacher Ratio = 25:1

SOAR Articulations

SOAR is a Pennsylvania Department of Education (PDE) program which enables high school students who successfully complete a PDE approved career and technical program to earn college credits. The

	number of credits available varies by school, program and from one school year to another. Please discuss these options with your counselor. ○ HACC (Harrisburg Area Community College) 10 credits • NCCER Electrical Apprenticeship Year 1 Credit for those who qualify

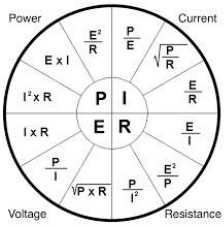
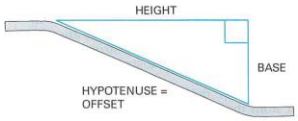
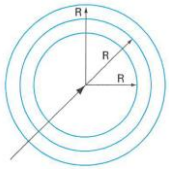
Student Name: _____ District: _____

Skill Alignment Chart for:

Electrical Construction Technology – CIP Code: 46.0399

Educational and Physical Attributes	Program Expectations	Present Education Level and Current Supports
Program Safety / Physical Considerations	• Ability to lift 50 lbs. overhead • Ability to properly wear and maintain proper PPE at all times during course • Ability to climb and descend ladders • No fear of heights • No fear of tight or confined spaces • Above average hand/eye coordination when using hand and power tools • Average fine motor skills • Ability to work independently • Ability to self-advocate • Be able to work in all conditions (example: Cold-Hot, Clean-Dusty/Dirty)	
Action/Need:		
Program Environment *Indoor/outdoor* *Dust/dirt/fume/noise etc* *Layout of room – theory/lab*	<u>Classroom</u> • Separate Lab/Theory areas • Lab to simulate industry • Individual Lab area • House Project (Weather Related) • Noise level high with indoor drilling, sawing and hammering • Individual assignments in both written and hands-on format <u>Industry</u> • Work in all weather conditions • Dusty, dirty and noisy environments • Heights required from ladders, scaffolding and lifts • Required to apply tasks individually under strict time restraints	
Action/Need:		

Typical Level of Support	IU13 support teachers and paraeducators check in on classrooms for brief periods of time throughout the day, often once or twice a day. IU13 learning support teachers may support 4-6 programs. IU13 emotional support teachers support their students in all programs throughout the building. Paraeducators may support 7-10 programs. The learning center is available at designated times for testing accommodations, study groups, work completion support, and instructional groups on IEP goal areas. Time spent in the learning center limits time spent in labs, so students must make the most of their brief time in the learning center. Services are at an itinerant level. IU13 teachers and paraeducators are unable to be in every program all day due to the itinerant nature. It is not a co-taught structure.	
Action/Need:		
Reading / ELA Levels	<u>13.9 Grade Reading Level</u> • Read and Comprehend Textbooks Independently and Proficiently • Follow Multi-Step Procedures • Summarize Text and Instruction to Notebooks and Tasks • Independently Read and Interpret Text for Hands-on Task Information • Understand and Navigate the National Electric Code Frequently • Interpret Blueprint Text and Symbols • Understand and use Industry Vocabulary • Explain and Perform Ideas from Text	
Action/Need:		
Writing Levels	• Write a Daily Work Log for Completion • Provide Clear and concise Writing detailing what has or will be completed • Complete Work Orders and Inventories to Simulate Industry Requirements • Have Basic Sentence Structure Skills • Create a Resume', Cover Letter and Reference Page • Technology Discussions and Posts • Summarize Lessons and Readings to Notebook	

Action/Need:		
Math Levels Examples:  $\frac{R1 \times R2}{R1 + R2} = \frac{10 \times 15}{10 + 15} = \frac{50}{25} = 6\Omega$ $R_T = \frac{1}{\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{2}}$ $R_T = \frac{1}{0.5 + 0.25 + 0.125 + 0.5}$ $R_T = \frac{1}{1.375} = 0.73\Omega$   	<u>Construction Math</u> • Fluency in Operations with Whole Numbers and Decimals • Fraction Computations • Whole Number Exponents • Fraction to Decimal Convert • Percent and Ratio Problem • Estimate Irrational Numbers • Problem Solving with Units/Conversions (Algebra 1) <u>Measurement</u> • English/Metric Units: Accuracy to Nearest 1/16 inch or mm • Reading a Ruler/Tape Measure • Unit Conversions <u>Electrical Specific Math</u> • Algebraic Concepts for One Step Equation Solutions (Algebra 1) • Geometric Concepts for Scale Drawings, Concentric Circles and Right Triangles • Data and Probability Concepts for Interpreting Data on Various Displays Used to Make Predictions • Trigonometry Concepts for Using Trig Table to Find Parallel Bends in Conduits <u>Note: Algebra 2 Level is required for admission to any pre-apprenticeship program</u>	
Action/Need:		
Theory time	<u>Up to 3 hours/day (Morning/Afternoon Session)</u> • PowerPoint Presentations • Structured Notes • Review Questions • Chapter Reading • Technology Based Assignments • Demonstrations • Vocabulary • Daily Timesheet • Certification Testing • Summative/Formative Assessments	

Action/Need:		
Homework *Amount per night*	<u>Complete 1- Certification Module every 1 ½ weeks</u> • Book Review Questions • Vocabulary Words (occupation specific) • Guided Notes, Study Guide (Class time can be allotted if current in lab)	
Action/Need:		
Lab Time *Guided vs Independent Work*	<u>Up to 4 hours/day (Morning/Afternoon Session)</u> • Theory topics applied to hands-on work • Expectation is 1-5 tasks/week depending on module • Required to Stay Current on all assignments	
Action/Need:		
Tests *NOCTI testing – Y/N* *Frequency of tests/quizzes*	• Certification Test every 1 ½ weeks • Quizzes/Small Assessments weekly • Vocabulary Knowledge • Formative/Summative Assessments • NOCTI testing (Pretest, Written and Hands-on)	
Action/Need:		
Behavioral Expectations *Executive Function* *Organizational skills*	• Ability to Work Independently • Time Management • Active Listening and Learning • Self-Advocating • Priority on Attendance • Attention to Detail • Critical Thinking Skills • Problem Solving • Treat all Peers and Staff with respect	

	• Completion of Tasks with Minimal Supervision	
Action/Need:		
Other *Technology skills specific to the program*	<u>Technology Based Instruction</u> • Use and Navigate School-Issued Laptop • Email Management • Comply with school Internet Usage Policy • Use and Navigate Learning Management Software • Teams Meetings Required if virtual instruction is used	
Action/Need:		

*District Representative Signature*_____ *Date* _____