Great Oaks Commercial and Residential Electricity Essential Skills Profile

This profile provides an outline of the skills required for successful completion of this career program. Additional information is located on the Great Oaks website at https://hs.greatoaks.com/future-students/essential-skills-for-high-school-programs and selecting the corresponding career program.

Recommended WorkKeys® Scores for Commercial and Residential Electricity

Applied Mathematics – 4
Workplace Documents – 4
Graphic Literacy – 4

*Practice tests and more information at https://jobseeker.ohiomeansjobs.monster.com/Assessments/Home.aspx

Recommended Essential Skills to Successfully Complete the Program			
Rating Key:	**Low = Slightly Essential**	**Medium = Essential**	**High = Very Essential**

Key Vocational Factors		**Rating**
Visual Acuity	The ability to detect differences/details visually	High
Depth Perception	The ability to detect the physical distance/depth of objects in space and time	Medium
Oral Communication	The ability to express/explain ideas	Medium
Oral Expression	The ability to verbally explain and express self in an intelligible manner so others will understand	Medium
Written Communication	The ability to communicate in a written format and record information accurately	Medium
Physical Mobility/Strength	Extended standing, bending, stooping, use of ladders, working inside and outside, working at high levels (heights), and working on roofs or at high levels above the ground	High
Eye-hand Coordination	The ability to use tools	High
Auditory Acuity	The ability to detect differences in pitch and sound	Low
Safety Understanding	Able to comprehend hazards of working with tools, materials, equipment, and environmental conditions; able to wear personal protective equipment suitable for task	High

Worker Trait Skills	**Rating**
Ability to get along with others	Medium
Ability to work independently, without close supervision	Medium
Ability to work toward work including tasks of minimal interest	Medium
Ability to follow and retain:	
Written instructions/technical manuals - multistep	Medium
Simple to complex diagram instructions	Medium
Visual models or demonstrated instructions	Medium

Ability to use tools of trade (wire or cable cutter, voltage or current meters, stripping tools, screwdrivers, cable reels, hoists, ladders, circuit testes, utility knives, etc.)	High
Ability to use numerical data (count, measure, compute, etc.) in applied setting	Medium
Ability to discriminate between objects of similar:	
Size	Medium
Shape	Medium
Color (MUST be able to distinguish between colors)	High
Spatial relationship	Medium
Ability to organize work process/follow defined procedures	High
Coordination (eye-hand)	High
Able to sequence events or follow a sequence as necessary.	High
Active Listening: Give full attention to what other people are saying, taking time to understand the points being made, asking appropriate questions and not interrupting.	High
Quality Control Analysis: Conducting tests and inspections of products, services, or processes to evaluate quality or performance.	High
Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.	High

Applied Mathematics Skills * Recommended WorkKeys® Scores 4	
Understanding of numbers	Work with whole numbers and decimals. Convert fractions to decimals and/or convert from decimals to percentages.
Mathematical Calculations	Use one or two-step calculations to solve problems, decide what information, calculations or unit conversions to use to answer a problem
Solving problems with math	Solve problems that require mathematical operations with multiple units (e.g. 6 feet 4 inches or 4 hours 30 minutes), identify calculation mistakes
Workplace Documents Skills * Recommended WorkKeys® Scores 4	
Complexity	Straightforward with some longer sentences and may contain conditional situations
Information and detail	Mostly informative and can be several details
Vocabulary	Mostly common with some advanced words
Document type	Informational, instructional and policy-type documents
Graphic Literacy Skills * Recommended WorkKeys® Scores 4	
Using charts/graphs	Locate information in charts or graphs
Interpreting information	Compare two or more pieces of information, identify trends/patterns, make inference and identify graphics that accurately represents data

Additional Recommended Abilities

Near Vision	The ability to see details at close range (within a few feet of the observer).
Manual Dexterity	The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
Information Ordering	The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Knowledge Required in Commercial and Residential Electricity Field

English Language	Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
Mechanical	Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
Building and Construction	Knowledge of materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.

Commercial and Residential Electricity Work Activities

Measure, cut, and bend wire and conduit, using measuring instruments and hand tools.	Trace out short circuits or opens in wiring, using test meter.
Strip insulation from wire ends, using wire stripping pliers, and attach wires to terminals for subsequent soldering.	Examine electrical units for loose connections and broken insulation and tighten connections, using hand tools.
Construct controllers and panels, using power drills, drill presses, taps, saws, and punches.	Drill holes and pull or push wiring through openings, using hand and power tools.
Clean work area and wash parts.	Install copper-clad ground rods, using a manual post driver.
Maintain tools, vehicles, and equipment and keep parts and supplies in order.	Transport tools, materials, equipment, and supplies to work site by hand, hand truck, or heavy, motorized truck.
Thread conduit ends, connect couplings, and fabricate and secure conduit support brackets, using hand tools.	Disassemble defective electrical equipment, replace defective or worn parts, and reassemble equipment, using hand tools.
Requisition materials, using warehouse requisition or release forms.	Solder electrical connections, using soldering iron.

Erect electrical system components and barricades, and rig scaffolds, hoists, and shoring.	String transmission lines or cables through ducts or conduits, under the ground, through equipment, or to towers.
Perform semi-skilled and unskilled laboring duties related to the installation, maintenance and repair of a wide variety of electrical systems and equipment.	Operate cutting torches and welding equipment, while working with conduit and metal components to construct devices associated with electrical functions.
Dig trenches or holes for installation of conduit or supports.	Trim trees and clear undergrowth along right-of-way.
Bolt component parts together to form tower assemblies, using hand tools.	Paint a variety of objects related to electrical functions.
Raise, lower, or position equipment, tools, and materials, using hoist, hand line, or block and tackle.	Break up concrete, using air hammer, to facilitate installation, construction, or repair of equipment.
Plan layout and installation of electrical wiring, equipment, or fixtures, based on job specifications and local codes.	Connect wires to circuit breakers, transformers, or other components.
Test electrical systems or continuity of circuits in electrical wiring, equipment, or fixtures, using testing devices, such as ohmmeters, voltmeters, or oscilloscopes, to ensure compatibility and safety of system.	Inspect electrical systems, equipment, or components to identify hazards, defects, or the need for adjustment or repair, and to ensure compliance with codes.
Prepare sketches or follow blueprints to determine the location of wiring or equipment and to ensure conformance to building and safety codes.	Diagnose malfunctioning systems, apparatus, or components, using test equipment and hand tools to locate the cause of a breakdown and correct the problem.
Work from ladders, scaffolds, or roofs to install, maintain, or repair electrical wiring, equipment, or fixtures.	Maintain current electrician's license or identification card to meet governmental regulations.

Technology

Word Processing software	Spreadsheet software
Office Suite software	Database user interface and query software
Computer aided design CAD software	Read Blue Prints

Available Certifications

Credential	Ohio Graduation Points
NCCER Level 2 – Electricity	12
Pre-Apprenticeship Electrical	12
NCCER Core	6
NCCER Level 1 – Electricity	6
Aerial Work Platform (AWP) Operation	1
CPR/Frist Aid	1

Possible College Credits

College Credit Plus (CCP)	The CCP program provides Ohio high school students an opportunity to complete college courses and earn transcripted credit.
Career Technical Assurance Guides (CTAGs)	CTAGs award college credit for career-technical coursework to students who complete an approved course and earn a qualifying score on the end of course exam.
Articulated Credit	Some Great Oaks career-technical programs have agreements with colleges where student can earn credit toward a specific degree.

Please speak with your school counselor, Great Oaks counselor and/or career technical instructor to learn more about these potential opportunities.

Possible Career Pathways

Electrical Apprentice	Supply House Worker
Electrical Journeyman	Electrician
Lineman	Estimator
Project Manager	Electrical Engineer