Essential Skills

Building Path – Science, Technology, Engineering & Math

This path involves performing engineering duties like planning and designing tools, engines, machines, and other mechanically functioning equipment. Other jobs include overseeing installation, operation, maintenance, and repair of equipment.

Building Path – Science, Technology, Engineering & Math Program at Great Oaks

Program	Location
Alternative Electric Vehicle Technician	Laurel
Engineering Technologies & Robotics	Scarlet

Next Ready Skills

Each career path has a specific set of skills/abilities that employees need for success in the industry. It is recommended that students have, are developing or can develop the skills/abilities listed below.

Effective Communicator	• Express/explain thoughts/ideas • Observe/document/maintain/update accurate records • Listen/relay accurate information in written/verbal manner • Use active listening to give full attention/understanding to others • Able to read/understand blueprints/schematics and electrical diagrams • Practice professional social communication (social media/workplace conversations)
Critical Thinking	• Follow sequenced activities accurately • Apply general rules to specific problems to produce answers that make sense • Connect theoretical concepts to practical applications • Develop/follow specifications, procedures and processes • Make informed decisions quickly
Adaptable Navigator	• Learn and adjust to cutting-edge technology • Work independently with minimal supervision/high attention to detail • Confer with others to resolve design or operational problems • Develop/follow sequenced activities accurately • Respond/adapt to changes in technology/scope of work/project needs
Accountable Employee	• Be on time, honest and keep commitments • Follow ethical work practices including honesty/trustworthiness • Follow management techniques to organize/maintain/protect records • Participate in class/lab activities/discussions/teamwork • Connect/network with industry professionals • Complete work in a timely manner
Skilled Professional	• Commitment to fostering innovation and alternative thinking to develop new ideas • Respond to critique positively/revise work based on feedback • Make informed decisions quickly • Develop a career path plan • Build career-focused technical/professional skills

Technology and Software

All career & technical education programs utilize various software and industry-specific equipment to prepare students for their careers. Students will independently access and use various online resources, technology, and equipment.

Here is an overview of key online and computer technology used in this pathway:

Vendor	Software/Learning Management System
SolidWorks	3D CAD Design Software
Tooling University	Tooling U Advanced
CareerSafe	Online OSHA 10 credentialing preparation/testing platform
Rockwell Automation	Manufacturing/automation software
Microsoft Office	Word, PowerPoint, Excel and Outlook
Internet Browsing	Conduct career-related independent and group research

Rev. 2 – Fall 2024

Great Oaks CAREER CAMPUSES
Diamond • Laurel • Live • Scarlet

Industry Credentials/Certifications

Credentials/certifications demonstrate knowledge and skills. They are typically earned by successfully completing an exam or skill-related training program. Exams are developed by industry professionals, not high school educators, and are used to verify that students have the skills needed for work.

Students can earn industry credentials/certifications while at Great Oaks. Available accommodations are subject to vendor and/or State of Ohio approval. Some credential/certification exams do not allow any accommodations. Contact campus Intervention Specialist for the most up-to-date permitted accommodations.

Permitted accommodations may include:

- Extended time
- Read-aloud/translation services

Post-secondary

Great Oaks offers college credit courses in both academic and career technical programs.

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 students can earn credit toward a specific degree.

Additional Pathway Considerations

Some career pathways have additional standards students must meet to fully participate in Great Oaks programs. Programs in this pathway have some of the following requirements to participate in learning experiences and earn industry credentials/certifications.

Academic strengths	• Math/numerical calculations (muti-step calculations/unit conversions/decimals) • Geometry/spatial awareness • Physics/material sciences • Oral/written communication
Sharpness of vision Hearing acuity Physical mobility/strength Eye-hand coordination/dexterity	• Distinguish details/differences visually and differentiate various sounds • Perceive distance/depth of objects in space • Distinguish between colors (blueprints/wiring diagrams) • Able to sit for extended times using a computer • Use arm/eye-hand coordination/manual dexterity to manipulate/assemble items • Use power/hand tools and work with precision tools/equipment
Safety	• Some work sites require OSHA 10 certification and/or pass a drug screen • Awareness of workplace hazards (electrical/equipment/tools/power delivery systems) • Wear personal protective equipment (safety glasses, hardhats, gloves, safety harnesses, steel-toed boots/hearing protection) • Read/follow instruction/technical manuals • Understand hazards associated with equipment/tools/worksites • Follow policies/procedures/codes to protect people/data/property • Remain aware of surroundings for potential hazards (utilities)
Career expectations	• Install/calibrate/operate robotic systems • Record information (time/materials used/data) • Integrate robotics with peripheral equipment (controllers/3D printers) • Install/calibrate/operate/maintain equipment • Troubleshoot mechanical failures/maintenance issues • Understand/use continuous improvement manufacturing processes (Lean) • Program/debug equipment • Research feasibility/design/operation of robotic equipment • Study/read blueprints/sketches/plans for project layout • Understand/use materials specified in blueprints/plans • Work collaboratively with experts across various pathways

Rev. 2 – Fall 2024

Great Oaks CAREER CAMPUSES
Diamond • Laurel • Live • Scarlet