

Essential Skills

Building Path – Manufacturing

This path involves physical labor at shops or construction sites and includes hand-welding, flame-cutting, or soldering equipment to weld/join metal components. Other jobs include setting up/programming/operating CNC machines to create new parts from blueprints/plans/prototypes.

Building Path – Manufacturing Programs at Great Oaks

Program	Location
Manufacturing Engineering Technologies	Diamond, Live
Welding & Fabrication	Diamond, Laurel, Live, Scarlet

Frequently Used Pathway Skills/Abilities

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.

Sharpness of vision/hearing acuity	<ul style="list-style-type: none">• Distinguish details/differences visually• Differentiate various sounds/pitch• Perceive distance/depth of objects in space
Communication	<ul style="list-style-type: none">• 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• Read/understand blueprints/drawings• Social communication (appropriate social media/workplace conversations)
Physical mobility/strength Eye-hand coordination/dexterity	<ul style="list-style-type: none">• Extended standing/sitting, stooping/bending• Use arm-hand steadiness, eye-hand coordination and manual dexterity to grasp, manipulate, or assemble objects• Ability to use power/hand tools• Lift and carry heavy objects (up to 80 pounds)
Problem-solving/reasoning	<ul style="list-style-type: none">• Follow sequenced activities accurately• Work independently with minimal supervision• Apply general rules to specific problems• Develop/follow procedures and processes• Make informed decisions quickly• Study specifications to prepare project layout/work activities• Awareness of surroundings to keep safe

Technology and Software

All career & technical education programs utilize various software and industry-specific equipment to prepare students for 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
Cengage	MindTap Precision Machining Technology
CareerSafe	Online OSHA 10 credentialing preparation/testing platform
FASTech Inc.	Mastercam - CAD/CAM/5 Multiaxis
Tooling University	Tooling U Advanced
Microsoft Office	Word, PowerPoint, Excel and Outlook
Internet Browsing	Conduct career-related independent and group research

Industry Credentials/Certifications

Credentials/certifications demonstrate knowledge and skills. They are typically earned by successfully completing an exam or completing a 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. Accommodations are available but are subject to vendor or State of Ohio approval. Typical accommodations for industry-related credentials/certifications include:

Extended time

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 transcribed 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 (precise measurement /fractions/decimals/percentages/various operations)
- Problem solving
- Geometry (3-dimensional visualization/spatial understanding/scale)
- Science (metals/impacts of heat on metals)
- Oral/written communication

Safety

- Some worksites require OSHA 10 certification
- Some sites require passing a drug screen
- Comprehend hazards of working with tools/equipment/materials/environmental conditions
- Wear personal protective equipment (safety glasses/hardhats/gloves/safety harnesses/steel-toed boots/welding helmet/hearing protection)
- Read/follow instruction/technical manuals
- Understand hazards associated with equipment/tools/worksites
- Follow policies/procedures/codes to protect people/data/property

Career expectations

- Work in various weather conditions (indoors/outdoors/summer/winter)
- Work at various heights, using ladders, stooping/bending
- Record information (time/materials used/accidents/changes to work)
- Comply with standards/policies/procedures (safety/maintenance)
- Recommend/develop/perform general/preventative maintenance for tools/equipment
- Follow specifications in blueprints/sketches/plans for project layout
- Participate in planning/fabrication/assembly/inspection of projects
- Measure/examine/test completed work to check for defects
- Ensure conformance to specifications using precision instruments