

	<h2>Great Oaks Heavy Equipment Operations and Engineering Essential Skills Profile</h2>
	<p>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 http://hs.greatoaks.com/essential-skills-high-school-programs/ and selecting the corresponding career program.</p>

Recommended Work Keys Scores for Heavy Equipment Operations and Engineering

Applied Mathematics-3	Locating Information-4
Reading for Information-3	

*Practice tests and more information at www.act.org/workkeys

Essential Skills Needed 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	High
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, working inside and outside, and working in muddy and rocky conditions, and working in equipment that bumps and shakes the driver	High
Eye-hand Coordination	The ability to use tools	High
Auditory Acuity	The ability to detect differences in pitch and sound	Medium
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:	
Multi step oral instructions	High
Written instructions/technical manuals-multi step	High
Simple to complex diagram instructions	Medium
Visual models or demonstrated instructions	High

Ability to use tools of trade (man lift or personnel lift, forklifts, lifts, forklift or elevator accessories or supplies, cargo handling equipment, shovels, ladders, etc.)	High
Ability to use numerical data (count, measure, compute, etc.) in applied setting	Medium
Ability to discriminate between objects of similar:	
Size, size, shape, and spatial relationship	Medium
Ability to organize work process/follow defined procedures	High
Dexterity (fine finger)	Medium
Coordination (eye-hand-legs)	High
Able to sequence events or follow a sequence as necessary	High
Operation and Control: Controlling operations of equipment or systems.	High
Coordination: Adjusting actions in relation to others' actions.	High
Operation Monitoring: Watching gauges, dials, or other indicators to make sure machine is working properly	High

Reading Skills *See Work Keys Recommended Scores	
Math Skills *See Work Keys Recommended Scores	
Counting-Recording-Comparing-Calculating	Whole numbers and decimals
Calculating Fractions, decimals, ratios, order of operations	Pre-Algebra and Geometry
Ratio, Algebra, Formulas, Square Roots	Geometry

Additional Abilities Required

Control Precision	The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
Response Orientation	The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.
Multi-limb Coordination	The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Knowledge Required in Heavy Equipment Operations and Engineering Field

Public Safety and Security	Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
English Language	Knowledge of the structure and content of the English language including the meaning and

	spelling of words, rules of composition, and grammar.
Customer and Personal Service	Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

Additional Considerations

Must enjoy working with their hands, able to follow directions, and work independently	Must possess good communication skills
Must be aware of surroundings such as live electrical points, safety glasses, overhead dangers, safety harness requirements, and gas lines	Must be able to problem solve
Wear a uniform	Must be able to work in various climates: rain, snow, ice, inside, outside, heat, etc.
Must understand the hazards associated with the equipment and tools	Must not mind heights, using ladders, stooping, and bending.

Technology

Spreadsheet software	Office suite software
Materials requirement's planning logistics and supply chain software	Inventory management software
Enterprise resource planning ERP software	

Heavy Equipment Operations and Engineering Work Activities

Learn and follow safety regulations.	Take actions to avoid potential hazards or obstructions, such as utility lines, other equipment, other workers, or falling objects
Inspect product load for accuracy and safely move it around the warehouse or facility to ensure timely and complete delivery.	Manually or mechanically load or unload materials from pallets, skids, platforms, cars, lifting devices, or other transport vehicles.
Position lifting devices under, over, or around loaded pallets, skids, or boxes and secure material or products for transport to designated areas.	Perform routine maintenance on vehicles or auxiliary equipment, such as cleaning, lubricating, recharging batteries, fueling, or replacing liquefied-gas tank.
Weigh materials or products and record weight or other production data on tags or labels.	Operate or tend automatic stacking, loading, packaging, or cutting machines.
Signal workers to discharge, dump, or level materials.	Turn valves and open chutes to dump, spray, or release materials from dump cars or storage bins into hoppers.

Move controls to drive gasoline- or electric-powered trucks, cars, or tractors and transport materials between loading, processing, and storage area.	Take actions to avoid potential hazards or obstructions, such as utility lines, other equipment, other workers, or falling objects
Hook tow trucks to trailer hitches and fasten attachments, such as graders, plows, rollers, or winch cables to tractors, using hitch pins.	Take actions to avoid potential hazards or obstructions, such as utility lines, other equipment, other workers, or falling objects
Move levers or controls that operate lifting devices, such as forklifts, lift beams with swivel-hooks, hoists, or elevating platforms, to load, unload, transport, or stack material.	Locate underground services, such as pipes or wires, prior to beginning work.
Monitor operations to ensure that health and safety standards are met.	Adjust hand wheels and depress pedals to control attachments, such as blades, buckets, scrapers, or swing booms.
Start engines, move throttles, switches, or levers, or depress pedals to operate machines, such as bulldozers, trench excavators, road graders, or backhoes.	Coordinate machine actions with other activities, positioning or moving loads in response to hand or audio signals from crew members.
Load and move dirt, rocks, equipment, or other materials, using trucks, crawler tractors, power cranes, shovels, graders, or related equipment.	Drive and maneuver equipment equipped with blades in successive passes over working areas to remove topsoil, vegetation, or rocks or to distribute and level earth or terrain.
Check fuel supplies at sites to ensure adequate availability	Keep records of material or equipment usage or problems encountered.
Align machines, cutterheads, or depth gauge makers with reference stakes and guidelines or ground or position equipment, following hand signals of other workers	Operate tractors or bulldozers to perform such tasks as clearing land, mixing sludge, trimming backfills, or building roadways or parking lots.
Drive tractor-trailer trucks to move equipment from site to site.	Repair and maintain equipment, making emergency adjustments or assisting with major repairs as necessary.
Select and fasten bulldozer blades or other attachments to tractors, using hitches.	Talk to clients and study instructions, plans, or diagrams to establish work requirements.

Available Certifications

ECSI (Emergency Care and Safety Institute)	CPR/First Aid Certification (1 point)
OHSA 10-hour card (1 point)	Skid Steer Operators Certification
NCCER (6 points-Core, 6 Points-Level 1)	NCCER Level 2

Possible College Credits

College Credit Plus in English, Math, Social Studies, or Science	Must be preapproved. Must pass a college course at an Ohio college or College Credit Plus class at Great Oaks.
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<p>Articulated Credit</p>	<p>Great Oaks has agreements with certain colleges that may give you credits for a specific degree. Possible agreements are:</p> <ul style="list-style-type: none"> • Hocking College (Heavy Equipment Management, up to 9 credit hours possible) • Ohio Valley ABC (Air Conditioning, Refrigeration and Heating Apprenticeship, 144 class hours, 2000 hours work experience, 2nd level)
<p>Career Technical Credit Transfer</p>	<p>The Ohio Transfer to Degree Guarantee helps career and technical students transfer credits earned in high school to community college or four-year degree programs. The credit can be used at any Ohio public college or university:</p> <ul style="list-style-type: none"> • If you successfully completed your career-technical program and passed certain required assessments. • If you attend a similar program at a public Ohio college or university.

*Additional college or post-secondary education may be required in this field

Possible Career Pathways

Equipment operator	Project estimator
Site engineer	Land developer