Great Oaks Automotive Technology-Mechanics 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 http://hs.greatoaks.com/essential-skills-high-school-programs/ and selecting the corresponding career program.

Recommended Work Keys Scores for Automotive Technology-Mechanics

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

*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
Auditory Acuity	The ability to detect differences in pitch/sound	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	The ability to lift 50 pounds or more, bending, stooping	High
Eye-Hand-Arm Coordination and Dexterity	The ability to use tools to ensure work is completed	High

Worker Trait Skills	**Rating**
Ability to get along with others	Medium
Ability to work independently, without close supervision	High
Ability to work toward work including tasks of minimal interest	Medium
Ability to stick to assigned task to a positive/expected conclusion	Medium
Ability to work accurately, recheck and correct work to industry standards	High
Ability to follow and retain:	
Multi step oral instructions	High
Written instructions/technical manuals-multi step	High
Simple to complex diagram instructions	High
Visual models or demonstrated instructions	High
Ability to use tools of trade (voltage or current meters, specialty wrenches, pullers, pneumatic vacuum equipment, brake repair kits, etc.)	High

Ability to use numerical data (count, measure, compute, etc.) in applied setting	High
Ability to discriminate between objects of similar:	
Size	Medium
Shape	Medium
Color	Medium
Spatial Relationship	Medium
Dexterity-Fine and gross finger/motor	High
Ability to organize work process/follow defined procedures	Medium
Able to sequence events or follow a sequence as necessary	Medium
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

Reading Skills *See Recommended Work Keys Scores	
Math Skills * See Recommended Work Keys Scores	
Counting, recording, comparing, calculating	Whole numbers and decimals
Calculating fractions, decimals, ratios, order of operations	Measurement
Proficient in algebra	

Additional Abilities/Skills Required

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.
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.
Arm-Hand Steadiness	The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
Control Precision	The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
Tech Prep Requirements	Attendance requirement of 95%; minimum Grade of C in algebra; 2.0 overall grade point average or higher
Work Preferences	Detail oriented, computer savvy, dirty/greasy, inside work with crawling, bending, and stooping

Knowledge Required in Automotive Technology-Mechanics

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.

Mechanical	Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
English Language	Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.

Automotive Technology- Mechanics Activities

Inspect vehicles for damage and record findings so that necessary repairs can be made.	Estimate costs of vehicle repair.
Troubleshoot fuel, ignition, and emissions control systems, using electronic testing equipment.	Repair, overhaul, or adjust automobile brake systems.
Test electronic computer components in automobiles to ensure proper operation.	Repair or replace defective ball joint suspensions, brake shoes, or wheel bearings.
Align wheels, axles, frames, torsion bars, and steering mechanisms of automobiles, using special alignment equipment and wheel-balancing machines.	Tune automobile engines to ensure proper and efficient functioning.
Repair, replace, or adjust defective fuel injectors, carburetor parts, and gasoline filters.	Rebuild, repair, or test automotive fuel injection units.
Change spark plugs, fuel filters, air filters, and batteries in hybrid electric vehicles.	Conduct visual inspections of compressed natural gas fuel systems to identify cracks, gouges, abrasions, discoloration, broken fibers, loose brackets, damaged gaskets, or other problems
Diagnose and replace or repair engine management systems or related sensors for flexible fuel vehicles (FFVs) with ignition timing, fuel rate, alcohol concentration, or air-to-fuel ratio malfunctions.	Replace hydraulically assisted systems with electric-powered systems, such as power steering pumps or air conditioning compressors, to improve fuel economy.
Service or repair butane gas, ethanol, methane, or other alternative or biofuel systems.	Install or repair air conditioners and service components, such as compressors, condensers, and controls.
Service internal combustion engine systems for hybrid electric vehicles.	Install, adjust, or repair hydraulic or electromagnetic automatic lift mechanisms used to raise and lower automobile windows, seats, and tops.

Diagnose and repair regenerative braking systems or hydraulic systems in hybrid vehicles.	Repair or rebuild clutch systems.
Repair or replace automobile leaf springs.	Replace defective mufflers and tailpipes.
Service biodiesel fuel tanks for algae or sludge accumulation by cleaning, changing filters, or adding algaecides.	Diagnose, troubleshoot, repair & install the following: brakes, electrical/electronics, engine repair, steering & suspension, engine performance.

Technology

Project management software	Facilities management software
Information retrieval or search software	Data base reporting software
Analytical scientific software	

Available Certifications

ECSI (Emergency Care and Safety Institute)	CPR/First Aid Certification (1 Point)
ASE Student Certification (3 Points each) There are 4 Certifications available	ASE G1 MLR Certification (12 Points)

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.
Articulated Credit	Great Oaks has agreements with certain colleges that may give you credits for a specific degree. Possible agreements are: • Gateway Community and Technical College (Automotive Technology, up to 10 credit hours possible) • Sinclair Community College (Automotive Technology, up to 5 credit hours possible) • Cincinnati State Technical and Community College up to 12 credit hours possible

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

Possible Career Pathways

Automotive Technician	Diagnostician
Master Mechanic	Service Manager