

AUTO COURSE STUDENT LEARNING OUTCOMES

AUTO 101 - Introduction to General Mechanics

Students will be able to demonstrate mechanical aptitude in the performance of basic maintenance service items using correct tools, equipment and procedures.

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to synthesize the principles of design, construction, operation, and maintenance of light duty vehicles.

AUTO 111 - Automotive Electricity

Students will be able to identify the failure and repair of circuit or component failures using appropriate specialized tools and precision electrical test equipment.

Students will be able to locate and identify schematic wiring diagrams to formulate correct testing, diagnosis and repair procedure of electrical circuits or components.

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to use simple algebra to solve applied technical problems.

AUTO 112 - Automotive Electricity II

Students will be able to correctly interpret wiring diagrams and operation of electronic devices, battery, starting, and charging systems.

Students will be able to demonstrate mechanical aptitude for testing circuits and components. Students will formulate strategy for repair of component or system failure. Students will apply correct use of specialized equipment and tools to accomplish component or system repair.

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

AUTO 136 - Engine Repair

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to identify different engine configurations and all major engine components and sub-systems.

Students will be able to identify, test, and interpret failed systems or components. Students will formulate strategies for repair procedures for failed system or components. Students will apply use of specialized tools to accomplish component or system repairs.

Students will be able to add, subtract, multiply and divide whole numbers, common fractions and decimal fractions when solving applied technical problems.

Students will be able to use units correctly and convert between metric and standard units of measure.

Students will be able to use a variety of precision measuring instruments correctly when inspecting mechanical components.

Students will be able to apply strategies to enhance effectiveness of multiple modes of communication in the workplace.

AUTO 145 - Automotive Brakes

Students will be able to formulate the appropriate repair strategy for failed system or component. Student will use the correct specialized tools to accomplish repair of failed brake system or component.

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to identify, test, and interpret brake system or component failures.

Students will be able to be able to calculate areas and volumes as applied to the solution of applied technical problems.

Students will be able to use ratios, proportions, angular measure and percentages in the solution of applied technical problems.

Students will be able to analyze what constitutes negative attitudes, the impact these have on conflict, and apply conflict resolution methods to workplace situations.

AUTO 150 - Steering and Suspension Systems

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to identify different types of steering systems, suspension systems, and control components.

Students will be able to identify, test, and interpret failed steering and suspension components. Students will formulate the correct repair strategy for the failed component. Students will use the appropriate specialized tools to repair the failed component.

Students will be able to use angular measure to solve applied technical problems.

Students will be able to use a variety of precision measuring instruments correctly when inspecting mechanical components.

Students will be able to identify different communication strategies and will appropriately apply them to case studies or in workplace situations.

AUTO 165 - Auto Heating and Air Conditioning

Students will be able to locate and identify heating and air conditioning systems, components, and their operation.

Students will be able to develop hands-on skills needed to operate refrigerant handling and recycling equipment.

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to identify, test, and interpret failed electronic climate control systems. Students will formulate the correct repair strategy for the failed component or system. Students will use the appropriate specialized tools and equipment to repair the failed component or system.

AUTO 185 - Introduction to Alternative Fueled Vehicles

Students will be able to identify the factors that contribute to the alternative fuels movement.

Students will be able to identify the advantages and disadvantages to each major alternative propulsion method.

Students will be able to identify safety precautions for each alternative fuel.

Students will be able to describe the operation of a gaseous fueled engine, bio-diesel engine, electric vehicle, hybrid electric vehicle, and a hydrogen fuel cell.

AUTO 198 - Special Topics in Auto

CSLOs are under review.

AUTO 200 - History of the Automobile

CSLOs are under review.

AUTO 205 - Manual Drive Trains and Axles

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to identify drivetrain configurations, components, and operation of components.

Students will be able to identify, test, and interpret failed drivetrain components. Students will formulate repair strategies for drivetrain components. Students will use appropriate specialized tools to repair drivetrain components.

AUTO 216 - Automatic Transmissions

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to identify different transmission configurations and major transmission components and operation.

Students will be able to identify, test, and interpret failed transmission components or systems. Students will formulate repair strategies for transmission or transaxle repair. Students will use the appropriate specialized tools and equipment to repair transmission or transaxles.

AUTO 225 - Engine Performance I

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to formulate repair strategies for failed ignition system or fuel delivery system. Students will use appropriate specialized tools and equipment to repair ignition system or fuel delivery system.

Students will be able to identify, test, and interpret failed engine components, and fuel delivery components.

Students will be able to use simple algebra to solve applied technical problems.

Students will be able to use area, volume and distance formulas of circles, spheres, and cylinders when solving applied technical problems.

Students will be able to identify ethical issues in a shop environment and work in groups to complete laboratory assignments requiring accurate communication.

AUTO 227 - Engine Performance II

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to identify, test, and interpret failed powertrain or emission components. Students will formulate the repair strategies for failed component or system. Students will use appropriate specialized tools and equipment to repair failed component or system.

Students will be able to locate and identify powertrain control sensors, components, and emission components.

Students will be able to use simple algebra to solve applied technical problems.

Students will be able to use area, volume and distance formulas of circles, spheres, and cylinders when solving applied technical problems.

Students will be able to work in teams to identify common problems and propose solutions that promote integrity and safety.

AUTO 235 - Engine Performance III

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to formulate repair strategies for failed control systems or components.

Students will be able to use the appropriate specialized tools and equipment to repair OBD II and CAN/BUS systems.

AUTO 265 - Electrical/Electronic Systems III

Students will be able to identify, test, and interpret failed computer-controlled systems and components.

Students will be able to employ appropriate workplace skills, including the application of personal and mechanical safety measures.

Students will be able to formulate repair strategies for computer controlled-systems or components. Students will use the appropriate specialized tools and equipment to repair computer-controlled systems or components.

AUTO 285 - Hybrid Vehicle Service Techniques

Students will be able to identify potential high voltage components and hazards on HEV's.

Students will be able to identify applicable laws and regulations related to working on HEV's.

Students will be able to remove and replace the major components of an HEV including the HV batteries, DC-DC converter, controller assemblies, etc.

Students will be able to perform service procedures unique to HEV's including brake systems, cooling systems, air conditioning systems, and other related components.

Students will be able to retrieve HEV diagnostic codes, diagnose, and repair HEV malfunctions.

AUTO 290 - Internship in Automotive Level I

CSLOs are under review.