

AUTOMOTIVE TECHNOLOGY (AUT)

Course Descriptions

AUT 101. Automotive Fundamentals and Service Information. 3 Credit Hours.

Automotive Fundamentals and Service Information is an entry-level course that exposes the student to all aspects of automotive safety procedures and precautions. Additionally, students receive training on what types of electronic service information is available for technicians and how to access vehicle-specific repair procedures and specifications. Students will also become proficient using precision measuring tools using metric and standard measurements. (Credit is only allowed for either AUT 101 or AUT 520.)

Prerequisites: Reading Proficiency

AUT 103. Automotive Vehicle Inspection and Light Maintenance. 3 Credit Hours.

Automotive Vehicle Inspection and Light Maintenance will illustrate the fundamentals of basic vehicle maintenance and inspection for entry-level employment. Students will gain experience in the course from instructor-led lectures and hands-on application of identifying and performing typical light maintenance and inspection procedures. (Credit is only allowed for either AUT 103 or AUT 521.)

Prerequisites: Concurrent or prior enrollment in AUT 101 with a minimum grade of "C" and Reading Proficiency

AUT 105. Automotive Maintenance and Service. 3 Credit Hours.

Automotive Maintenance and Service teaches students entry-level skills to properly inspect, maintain, and service a modern vehicle. Students will gain exposure to various types of automotive fluids and learn how to properly exchange those fluids in accordance with the manufacturer's procedures. Additionally, students will learn how to replace common maintenance items such as wiper blades, automotive lights, and filters. This course will also cover how to properly dismount, repair, and mount a tire on a wheel and balance the assembly. (Credit is only allowed for either AUT 105 or AUT 522.)

Prerequisites: Concurrent or prior enrollment in AUT 101 and AUT 103 with minimum grades of "C", and Reading Proficiency

AUT 107. Automotive Steering and Suspension Service. 3 Credit Hours.

Automotive Steering and Suspension Service explores various types of steering and suspension designs and teaches detailed component testing procedures. Components include ball joints, struts, tie rod ends, and bushings. Students will also gain in-depth knowledge of performing two and four-wheel alignments using current wheel alignment technology. (Credit is allowed for only one of the following courses: AUT 107, AUT 168, or AUT 523.)

Prerequisites: Concurrent or prior enrollment in AUT 101, AUT 103, AUT 105 with minimum grades of "C", and Reading Proficiency

AUT 110. Automotive Electrical Principles. 3 Credit Hours.

Automotive Electrical Principles will build the foundation for direct current (DC) electricity. Students will learn the relationship between electrical circuits and units of electrical measurements while using a digital multi-meter (DMM). Students will gain practical experience in testing, diagnosing, and repairing electrical circuits and components on modern vehicles. An emphasis will be placed on ignition systems, starting, charging, and lighting circuits. (Credit is only allowed for either AUT 110 or AUT 156.)

Prerequisites: Concurrent or prior enrollment in AUT 101 with a minimum grade of "C" and Reading Proficiency

AUT 112. Automotive Brake Systems Service and Diagnosis. 3 Credit Hours.

Automotive Brake Systems Service and Diagnosis helps develop skills needed to inspect, service, and repair modern disc/drum brakes that are hydraulically controlled. Additional emphasis will focus on the operation and diagnosis of electronic braking systems. Students will identify Anti-Lock Brakes, Traction Control, Stability Control, the associated components, as well as diagnostic and repair procedures determined by the automobile manufacturer. (Credit is only allowed for either AUT 112 or AUT 169.)

Prerequisites: Concurrent or prior enrollment in AUT 101 with a minimum grade of "C" and Reading Proficiency

AUT 114. Automotive Engine Repair and Diagnosis. 3 Credit Hours.

Automotive Engine Repair and Diagnosis teaches the theory and application of the 4-cycle internal combustion engine. Students will learn to identify components, disassemble the engine, inspect components, measure to determine acceptable wear limits, and reassemble the engine. Additionally, students will learn how to diagnose engine conditions using common testing procedures. (Credit is only allowed for either AUT 114 or AUT 151.)

Prerequisites: Concurrent or prior enrollment in AUT 101 with a minimum grade of "C" and Reading Proficiency

AUT 116. Automotive Powertrain Controls. 3 Credit Hours.

Automotive Powertrain Controls explores the relationship between fuel delivery and engine control management. Students will learn how to identify and test a fuel delivery system. Students will identify different types of powertrain sensors and the appropriate testing procedures using various scan tools, Oscilloscope (DSO), and a Digital Multi-Meter (DMM). Additionally, students learn the relationship between On-Board Diagnostics Second Generation (OBDII) and vehicle networks. (Credit is only allowed for either AUT 116 or AUT 150 and AUT 271.)

Prerequisites: Concurrent or prior enrollment in AUT 101 with a minimum grade of "C" and Reading Proficiency

AUT 200. Automotive Fieldwork Operations. 5 Credit Hours.

Automotive Fieldwork Operations introduces students to three different roles within an automotive repair facility: service manager, parts manager, and technician. As a service manager, students will learn appointment scheduling, creating repair orders, communicating with customers, and the billing process. The parts manager is responsible for ensuring parts are ordered, billed, and returned correctly. The technician will be responsible for the practical application of diagnosing, testing, and repairing the vehicle. Students will rotate through each of these positions throughout the semester to provide practical real-world experience. (Credit is only allowed for either AUT 200 or AUT 281 and AUT 291.)

Prerequisites: AUT 107, AUT 110, AUT 112, AUT 114, AUT 116 with minimum grades of "C" and Reading Proficiency

AUT 203. Automotive Manual Drivetrain. 3 Credit Hours.

Automotive Manual Drivetrain covers the theory of operation, service procedures and diagnosis of manual transmissions, transfer cases, constant velocity joints, differential/axles, and clutches. Students will disassemble these components to determine internal operation and service procedures. There will be a focus on the service and maintenance of the components. Additionally, students will gain the skills needed to diagnose and determine if these components can be repaired or replaced. (Credit is only allowed for either AUT 203 or AUT 258.)

Prerequisites: AUT 101 with a minimum grade of "C" and Reading Proficiency

AUT 210. Automotive Transmissions and Transaxles. 3 Credit Hours.

Automotive Transmissions and Transaxles emphasizes the service, operation, diagnosis, and repair procedures of automatic transmissions and transaxles. Students will learn how to maintain and service multiple types of automatic transmissions. They will also disassemble an automatic transmission/transaxle to determine the internal operation and fluid flow. A complete breakdown of these units will allow students to inspect and test individual components and compare them against manufacturer specifications. There will also be a focus on diagnosing automatic transmission driveability concerns. (Credit is only allowed for either AUT 210 or AUT 273.)

Prerequisites: AUT 101 with a minimum grade of "C" and Reading Proficiency

AUT 212. Automotive Heating, Ventilation, and Air Conditioning. 3 Credit Hours.

Automotive Heating, Ventilation, and Air Conditioning (HVAC) emphasize the principles, operation, and diagnosis of heating and air conditioning features found in automobiles. Students will learn how to recover, recharge, and recycle refrigerants used in these systems. Additionally, an in-depth look at the ventilation system will cover the operation and diagnosis of blend and mode doors. NOTE: students will be required to be certified in the recovering and recycling of refrigerants in accordance with EPA standards. Additional costs will be required. (Credit is only allowed for either AUT 212 or AUT 272.)

Prerequisites: AUT 110 with a minimum grade of "C" and Reading Proficiency