

# AUTOMOTIVE TECHNOLOGY

## Programs

- Automotive Maintenance and Light Repair Certificate in Applied Science (<https://catalog.gvltec.edu/school-advanced-manufacturing-transportation-technology/automotive-technology/automotive-medium-light-repair-certificate/>)
- Automotive Technology Associate in Applied Science (<https://catalog.gvltec.edu/school-advanced-manufacturing-transportation-technology/automotive-technology/automotive-technology-aas/>)

## Courses

### **AUT 100 Introduction to Automotive Hazardous Materials (1-0-1)**

*Offered Fall and Spring Semesters*

This course is a basic study of the proper handling of hazardous materials found in automotive service centers. Topics include types of hazardous materials, handling of the materials, and their proper disposal.

### **AUT 103 Engine Reconditioning (3-4-4)**

*Offered Fall and Spring Semesters*

Prerequisite: AUT 159

This course is a review of engine fundamentals and overhaul procedures followed by performance in all areas of engine block preparation, cylinder head preparation, cleaning, specifications, measurements with micrometers, assembly and operation of unit.

### **AUT 107 Advanced Engine Repair (3-4-4)**

*Offered Spring and Summer Semesters*

Prerequisites: AUT 149, AUT 241

This course includes an advanced application of engine fundamentals, including engine removal, internal diagnostic and repair procedures, engine assembly and installation procedures.

### **AUT 110 Introduction to Automotive Welding (2-3-3)**

*Offered Fall Semester*

This course is an introduction to basic welding as it applies to automotive technology. This course will cover safety procedures, cutting torch operation, basic gas welding and basic mig welding.

### **AUT 112 Braking Systems (3-4-4)**

*Offered Spring and Summer Semesters*

Prerequisites: AUT 132, AUT 159

This course covers hydro-boost power brakes and vacuum power brakes as well as master cylinders and caliper rebuilding. Topics covered also include fundamentals of hydraulics, brake components and ABS, the relation to tractions control and vehicle stability.

### **AUT 116 Manual Transmission and Axle (3-4-4)**

*Offered Fall and Summer Semesters*

Prerequisite: AUT 159

This course is an advanced study of manual transmissions and transaxles, including proper overhaul procedures for axles and manual transmissions and transaxles.

### **AUT 122 Suspension and Alignment (3-4-4)**

*Offered Spring and Summer Semesters*

Prerequisite: AUT 159

This course is a study of suspension and steering systems, including non-adjustable and adjustable wheel alignment angles and application of balancing and alignment equipment.

### **AUT 132 Automotive Electricity (3-4-4)**

*Offered Fall and Spring Semesters*

This course is a study of electricity as used in automotive applications. This course includes DC and AC principles and their various uses in the automobile. The relationship between Ohm's Law and actual automotive circuits is demonstrated.

### **AUT 143 Active Devices and Sensors (3-4-4)**

*Offered Fall and Spring Semesters*

Prerequisites: AUT 159, AUT 231

This course covers the basic operation of electronic devices and sensors, including basic circuits, applications, and diagnosis.

### **AUT 149 Ignition and Fuel Systems (3-4-4)**

*Offered Fall and Summer Semesters*

Prerequisites: AUT 103, AUT 159, AUT 231

This course is a study of ignition system operation and how it relates to fuel systems for proper engine operation. This course also covers fuel injection, direct-injection gasoline and distributorless ignition.

### **AUT 152 Automatic Transmissions (3-4-4)**

*Offered Fall and Spring Semesters*

Prerequisite: AUT 159, AUT 231

This course is a basic study of power flow and hydraulics, including torque converter operation.

### **AUT 159 Tools, Equipment and Reference Manuals (2-5-3)**

*Offered Fall and Spring Semesters*

This course is a study of the proper selection, care and use of tools and equipment, including proper use of service and reference manuals and guides.

### **AUT 231 Automotive Electronics (3-4-4)**

*Offered Spring and Summer Semester*

Prerequisite: AUT 132

This course includes the study of solid-state devices, microprocessors and complete diagnostics using the latest available equipment. This course will also cover starters, alternators, LAN (Local Area Network) and CAN (Control Area Network) systems.

### **AUT 232 Automotive Accessories (0-6-2)**

*Offered Summer and Fall Semesters*

Prerequisite: AUT 159, AUT 231

This course is a study of devices and systems considered accessories by the automotive industry. Study includes windshield wiper systems, power door locks, windows and seats, radios and clocks.

### **AUT 241 Automotive Air Conditioning (3-4-4)**

*Offered Fall and Summer Semesters*

Prerequisite: AUT 132

This course is a study of the principles of refrigeration, operation and testing procedures to determine the cause of malfunction, servicing, or repairing by approved methods. Emphasis is on special tools, equipment and safety procedures.

### **AUT 247 Electronic Fuel Systems (3-4-4)**

*Offered Spring and Summer Semester*

Prerequisite: AUT 149

This course includes the study of fuel injection systems, other fuel system components and how computers control fuel delivery.

### **AUT 252 Advanced Automatic Transmission (3-3-4)**

*Offered Spring Semester*

Prerequisites: AUT 132, AUT 152

This course is an advanced study of automatic transmission and transaxle electronics, including torque converter clutch and clutch controls.

**AUT 268 Special Topics in Automotives (2-5-3)**

*Offered Spring and Summer Semesters*

Prerequisites: AUT 122, AUT 143

This course covers special subject matter, new technology, new testing equipment, and diagnostic routines.

**AUT 275 Alternate Technology Vehicles (2-5-3)**

*Offered Fall and Spring Semesters*

Prerequisite: AUT 231

This course is the study of vehicles powered with gasoline engines in combination with other non-gasoline power systems. Hybrid, Fuel Cell, compressed gases and diesel/bio-diesel and Homogeneous Charge Compression Ignition (HCCI) technology will be covered in this course. Additional topics include hybrids, light duty diesels and 100% electric vehicles.