

# AUTOMOTIVE TECHNOLOGY (AUTO)

**AUTO G101** 3 Units (54 lecture hours; 18 lab hours)

**Introduction to Automotive Technology**

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course covers the operation and maintenance of the major systems of modern automobiles. There is an emphasis on the theory of the major operating systems, including engine, electrical, chassis, and driveline systems. Graded or Pass/No Pass option. **C-ID:** AUTO 110X.

**AUTO G110** 5 Units (72 lecture hours; 54 lab hours)

**Engine Repair**

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course provides students with theory, knowledge, and skills necessary to perform minor and major service on automotive gasoline powered engines, using lecture and lab. Instruction is given and lab experience provided in engine diagnosis, removal, disassembly, analysis and inspection, precision measurements, reassembly, and installation. Information presented is based on the Automotive Service Excellence (ASE) A-1 Engine Repair Tasks and Standards intended to prepare students for the ASE Certification Examination. Graded or Pass/No Pass option.

**AUTO G120** 5 Units (72 lecture hours; 54 lab hours)

**Electrical/Electronic Systems: Introductory**

**Advisory:** AUTO G101.

**Grading Mode:** Standard Letter

**Transfer Credit:** CSU.

This course is an introduction to automotive electrical systems that provides students theory, knowledge, and skills necessary to understand electrical flow and electronic concepts. Lecture content is reinforced through lab experience, which will enable students to successfully perform diagnostics and repair on vehicle electrical and electronic circuits. Content presented is based on the Automotive Service Excellence (ASE) A-6 Electrical/Electronics Tasks and Standards intended to prepare students for the ASE Certification Examination. Graded.

**AUTO G121** 5 Units (72 lecture hours; 54 lab hours)

**Electrical/Electronic Systems: Advanced**

**Advisory:** AUTO G120.

**Grading Mode:** Standard Letter

**Transfer Credit:** CSU.

This course is an advanced level course that provides students with theory, knowledge, and skills necessary to understand electrical flow and advanced automotive electronic diagnostic and repair concepts through lecture and lab. Coursework presented is based on the Automotive Service Excellence (ASE) A-6 Electrical/Electronics Tasks and Standards intended to prepare students for the ASE Certification Examination. Graded or Pass/No Pass option.

**AUTO G130** 4.5 Units (63 lecture hours; 54 lab hours)

**Engine Performance: Basic Theory/Diagnosis**

**Grading Mode:** Standard Letter

**Transfer Credit:** CSU.

This course is an introduction to the theory, knowledge, and skills necessary to understand engine performance concepts. Instruction is given and lab experience provided which will enable students to successfully perform diagnostics and repair on engine management and related systems. Information presented is based on the Automotive Service Excellence (ASE) Engine Performance Tasks and Standards intended to prepare students for the ASE A-8 Engine Performance certification examination. Graded.

**AUTO G131** 4.5 Units (63 lecture hours; 54 lab hours)

**Engine Performance: Advanced**

**Advisory:** AUTO G120 and AUTO G130.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course is an advanced level diagnostics course covering theory, knowledge, and skills necessary to understand advanced engine performance concepts. The lecture and lab instruction will enable students to successfully perform diagnostics and repairs on complex engine management and related systems. The course material is based on the Automotive Service Excellence (ASE) Engine Performance Tasks and Standards intended to prepare students for the ASE A-8 Engine Performance certification examination. Graded or Pass/No Pass option.

**AUTO G140** 5 Units (72 lecture hours; 54 lab hours)

**Automotive Chassis: Brakes**

**Grading Mode:** Standard Letter

**Transfer Credit:** CSU.

This course covers theory, knowledge, and skills necessary to understand automotive disc and drum brake systems, antilock-braking systems and related components. Instruction is given and lab experience provided which will enable students to successfully perform diagnostics and repairs on automotive brake systems. Information presented is based on the Automotive Service Excellence (ASE) Engine Performance Tasks and Standards intended to prepare students for the ASE A-5 Brakes examination. Graded. **C-ID:** AUTO 150X.

**AUTO G141** 4.5 Units (66 lecture hours; 50 lab hours)

**Automotive Chassis: Steering & Suspension**

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course covers the theory, knowledge, and skills necessary to understand automotive steering and suspension systems and related components. The lecture and lab instruction will enable students to successfully perform related diagnostics and repairs. The course material is based on the Automotive Service Excellence (ASE) Tasks and Standards intended to prepare students for the ASE A-4 Suspension & Steering Certification examination. Graded or Pass/No Pass option. **C-ID:** AUTO 140X.

**AUTO G145 5 Units (72 lecture hours; 54 lab hours)****Basic Clean Air Car Course****Grading Mode:** Standard Letter**Transfer Credit:** CSU.

This course is required by the Bureau of Automotive Repair (BAR) to obtain an Advanced Emissions Specialist license. The course will cover rules and regulations, history of the California Smog Check Program, a study of five-gas analysis, oxygen sensors, an overview of all emission control devices offered in California since 1975 and an introduction to onboard diagnostics second generation (OBD II). The theory in this course is reinforced with hands-on skill practice. Students must complete this course before submitting an application to the BAR for an Advanced Emissions Specialist license. Graded.

**AUTO G150 4 Units (54 lecture hours; 54 lab hours)****Manual Drive Trains & Axles****Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course provides the students with theory, knowledge, and skills necessary to understand automotive manual drive trains and transaxles concepts. Instruction is given and lab experience provided in diagnosis, removal, disassembly, analysis and inspection, precision measurements, reassembly, and installation. Information presented is based on the Automotive Service Excellence (ASE) A-3 Manual Drive Train and Axles Tasks and Standards intended to prepare students for the ASE Certification Examination. Graded or Pass/No Pass option. **C-ID:** AUTO 130X.

**AUTO G151 4 Units (55 lecture hours; 70 lab hours)****Automatic Transmissions and Transaxles****Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course provides the students with theory, knowledge, and skills necessary to understand automotive automatic transmission and transaxle concepts. Instruction is given and lab experience provided in diagnosis, removal, disassembly, inspection, precision measurements, re-assembly and installation. The coursework is based on the Automotive Service Excellence (ASE) Tasks and Standards intended to prepare students for the ASE A-2 Automatic Transmission and Transaxle Certification examination. Graded or Pass/No Pass option.

**AUTO G160 4 Units (60 lecture hours; 40 lab hours)****Heating and Air Conditioning****Grading Mode:** Standard Letter**Transfer Credit:** CSU.

This course will cover the theory, knowledge, and skills necessary to understand automotive Heating, Ventilation, and Air Conditioning (HVAC) systems. Instruction is given and lab experience provided which will enable students to successfully perform diagnostics and repair on both manual and automatic HVAC systems. EPA-accepted techniques for recovering and recycling R134 and R1234YF refrigerants will also be covered. Coursework is based on the Automotive Service Excellence (ASE) Tasks and Standards intended to prepare students for the ASE A-7 Heating and Air Conditioning certification examination. Graded.

**AUTO G170 3 Units (54 lecture hours; 18 lab hours)****Hybrid Vehicles****Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course is a hands-on approach to the world of hybrid, fuel cell and electric powered vehicles. Discover how this new technology works as it replaces existing fossil fueled engines. Examine existing technologies, conversion processes, testing, assembly, operation, and maintenance of hybrid-electric, fuel cell and battery powered electric vehicles. Appropriate safety related instruction is included. Graded or Pass/No Pass option.

**AUTO G173 5 Units (72 lecture hours; 54 lab hours)****Electric Vehicles****Prerequisite(s):** AUTO G120.**Co-requisite(s):** AUTO G170.**Grading Mode:** Standard Letter**Transfer Credit:** CSU.

This course furthers the student's skills in electric vehicle (EV) theory and provides an introduction to advanced EV designs and propulsion systems. The course includes: EV design and construction; the testing, assembly, operation and maintenance of EVs; the influence of battery management design; advanced technology batteries and intelligent charging systems; and alternative EV drive systems. Appropriate safety related instruction will be included in each segment. This course is designed to help the field technician prepare for the Automotive Service of Excellence (ASE) Light Duty Hybrid / Electric Vehicle Specialist (L3) exam. Students will also need to complete AUTO G170 to prepare for the ASE (L3) exam. Graded.

**AUTO G181 4 Units (54 lecture hours; 54 lab hours)****Automotive Express Service****Grading Mode:** Standard Letter**Transfer Credit:** CSU.

This course focuses on the skills required to be successful as an entry-level automotive technician. Proper vehicle inspection, maintenance, and repair skills presented in this course are essential to all areas of the automotive industry. This course aligns with multiple automotive manufacture procedures and best practices in regards to factory scheduled vehicle inspection and maintenance. Graded.