

AUTOMOTIVE TECHNOLOGY



The Automotive Technology department offers multiple programs that prepare students for entry-level employment and/or potential further study in the fields of Automotive repair, Automotive Air Conditioning, Brake Systems, Chassis, Automotive Electrical, Emissions, Engines, and Power Train Systems. Students completing these degrees/certificates will have a basic foundation for Automotive Technology and skills that include working safely in the automotive shop and performing repair tasks correctly and safely utilizing the correct tools.

Career opportunities include preparation for careers or employment in automotive and transmission disassembly, repair or rebuilding; diagnosis and repair or replacement of clutch assemblies, diagnosis, repair and servicing of differentials, electronic and electrical systems; suspension and steering systems, brake systems; heating and air conditioning, drivability and engine performance.

Contact Information

Automotive Technology Faculty Contact

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Associate Degree

- Associate of Science in Automotive Technology (Basic) (AS) (<https://catalog.cos.edu/areas-study/automotive-technology/associate-science-automotive-technology-basic-not-for-transfer-as/>)

Certificates

- Skill Certificate in Automotive Air Conditioning Technology (<https://catalog.cos.edu/areas-study/automotive-technology/skill-certificate-automotive-air-conditioning-technology/>)
- Skill Certificate in Automotive Chassis Technology (<https://catalog.cos.edu/areas-study/automotive-technology/skill-certificate-automotive-chassis-technology/>)
- Skill Certificate in Automotive Electrical Technology (<https://catalog.cos.edu/areas-study/automotive-technology/skill-certificate-automotive-electrical-technology/>)
- Skill Certificate in Automotive Emissions Technology (<https://catalog.cos.edu/areas-study/automotive-technology/skill-certificate-automotive-emissions-technology/>)
- Skill Certificate in Automotive Engine Technology (<https://catalog.cos.edu/areas-study/automotive-technology/skill-certificate-automotive-engine-technology/>)
- Skill Certificate in Automotive Power Train Systems Technology (<https://catalog.cos.edu/areas-study/automotive-technology/skill-certificate-automotive-power-train-systems-technology/>)

For a complete list of courses and descriptions visit: COURSES (<https://catalog.cos.edu/course-descriptions/>)

AUTO 130 Introduction to Automotive Technology **3unit(s)**
Hours: 2.5 Lecture/Discussion Hours:
1.5 Lab

AUTO 130 is the first course in the automotive program and is a prerequisite for all automotive core courses. Topics include the development of shop skills, safe working practices, and the correct use of tools in an automotive shop environment.

AUTO 136 Automotive Electrical Systems **4unit(s)**
Hours: 3 Lecture/Discussion Hours:
3 Lab

This is a study course of the theory, design, and operation of the complete automotive electrical and electronic systems. Instruction and lab cover the inspection, testing, and repair of the total electrical system and component parts.

Prerequisites: AUTO 130 (may be taken concurrently) or equivalent college course with a minimum grade of C.

AUTO 231 Automotive Engine Systems **4unit(s)**
Hours: 3 Lecture/Discussion Hours:
4 Lab

Instruction in theory, construction and repair of today's automotive gasoline engine. Formerly AUTO 131.

Prerequisites: AUTO 130 (may be taken concurrently) and AUTO 136 (may be taken concurrently) or equivalent college course with a minimum grade of C.

AUTO 232 Auto Automatic Transmissions

Hours: 3 Lecture/Discussion Hours:
3 Lab

Instruction in automatic transmission torque converter theory and operation, hydraulic system function, planetary gear theory and application, and the diagnosis and repair of these systems. Formerly AUTO 132.

Prerequisites: AUTO 130 (may be taken concurrently) and AUTO 136 (may be taken concurrently) or equivalent college course with a minimum grade of C.

AUTO 233 Automotive Power Train Systems

Hours: 3 Lecture/Discussion Hours:
3 Lab

Instruction in manual transmission theory and power flow in today's automobile power train systems including clutch systems, drive shafts, differential and drive axle operations.

Prerequisites: AUTO 130 (may be taken concurrently) and AUTO 136 (may be taken concurrently) or equivalent college course with a minimum grade of C.

AUTO 234 Auto Suspension/Steering System

Hours: 3 Lecture/Discussion Hours:
3 Lab

Instruction in theory and maintenance of automotive suspension and steering systems, including steering inspection and wheel alignment procedures.

Prerequisites: AUTO 130 (may be taken concurrently) and AUTO 136 (may be taken concurrently) or equivalent college course with a minimum grade of C.

AUTO 235 Automotive Brake Systems

Hours: 3 Lecture/Discussion Hours:
3 Lab

This course will provide the student with the technical skills and knowledge to diagnose, test, service and repair automotive brake systems. Instruction in hydraulics, pneumatics, anti-lock braking systems, associated electronics and the safe and proper use of brake systems tools and equipment for service and repair procedures will be included.

Prerequisites: AUTO 130 (may be taken concurrently) and AUTO 136 (may be taken concurrently) or equivalent college course with a minimum grade of C.

AUTO 237 Automotive Air Conditioning

Hours: 3 Lecture/Discussion Hours:
3 Lab

This is a course in the design, theory and operation of the automotive heating and air conditioning systems. Instruction and lab cover the systems components, servicing, testing, repair and retrofit. Formerly AUTO 137.

Prerequisites: AUTO 130 (may be taken concurrently) and AUTO 136 (may be taken concurrently) or equivalent college course with a minimum grade of C.

4unit(s)

AUTO 238 Automotive Engine Performance

Hours: 3 Lecture/Discussion Hours:
3 Lab

This is an advanced study course of engine performance, drivability and diagnostics. Instruction will cover electrical and electronics systems, fuel delivery systems, computer onboard diagnostics, advanced ignition systems, emission control systems and other engine related topics.

Prerequisites: AUTO 130 (may be taken concurrently) and AUTO 136 (may be taken concurrently) or equivalent college course with a minimum grade of C.

4unit(s)

4unit(s)

AUTO 243 Automotive Advanced Computer Controls

Hours: 4.5 Lecture/Discussion Hours:
2 Lab

This is an advanced study course of engine electrical and electronic computer control systems. The instruction will cover advanced theory, design and operation of computer control and on-board diagnostics systems, advanced fuel and ignition systems, and advanced test equipment.

Prerequisites: AUTO 130 (may be taken concurrently) and AUTO 136 (may be taken concurrently) or equivalent college course with a minimum grade of C.

5unit(s)

4unit(s)

AUTO 263 Emissions and Diagnostics Level 1

Hours: 3.5 Lecture/Discussion Hours:
1.5 Lab

This is a certification course designed to prepare students to take the Bureau of Automotive Repair's Smog Check Technician licensing examination. Any student may take this course, but may not be certified to take the State licensing examination.

Advisory on Recommended Preparation: AUTO 243 or equivalent college course with a minimum grade of C or equivalent skills as determined by departmental assessment.

4unit(s)

4unit(s)

AUTO 264 Emissions and Diagnostics Level 2

Hours: 1.5 Lecture/Discussion Hours:
1.5 Lab

This is a certification course designed to prepare students to take the Bureau of Automotive Repair Smog Check Technician licensing examination. It will cover the BAR 97 Transition Training, Advanced Emissions Diagnostics Training and the Enhanced Area Inspection and Testing procedure training.

Advisory on Recommended Preparation: AUTO 243 or equivalent college course with a minimum grade of C or equivalent skills as determined by departmental assessment.

2unit(s)

AUTO 273 Hybrid Electric Alternative Fuel Vehicles Technology L36unit(s)

Hours: 4 Lecture/Discussion Hours:

6 Lab

This course covers the theory of operation and service of hybrid, electric, and alternative fuel powered vehicles and light duty trucks. Topics include high voltage battery inspection and service, regenerative braking systems, electric climate control systems, motor/generator and drivetrain, bladder style fuel tanks and fuel cell technologies. Emphasis is placed on safety precautions necessary when servicing hybrid/electric and alternative fuels vehicles. In response to industry demand for technicians, students trained in the design, development, maintenance, diagnosis, and repair of alternative fuels vehicles will be able to obtain employment in related fields.

Advisory on Recommended Preparation: AUTO 238 with a minimum grade of C; ASE certification in areas A6 and A8.

Prerequisites: AUTO 136 and AUTO 130 or equivalent college course with a minimum grade of C, or equivalent knowledge and/or skills as determined by departmental assessment.

Automotive Technology

Howell, Donal

A.S., Fresno City College

A.S.E. Master Automotive Technician Certification

Melvin, Roman

B.S., California State University, Fresno

M.A., California Southern University