

Automotive Technology

PROGRAMS OF STUDY

- **Automotive Maintenance and Light Repair**
- Certificate of Achievement
- **Automotive Technology**
- Associate in Science Degree
- Certificate of Achievement
- **Emission Specialist**
- Certificate of Achievement

Automotive Technology

- Certificate of Achievement
- Associate in Science Degree

MPC's Automotive Technology Program is designed provide students with a solid foundation for technician positions in automotive dealerships, independent repair facilities, customizing shops and other auto-related industries. The program also offers technical training for automotive professionals who seek to upgrade their technical skills and knowledge.

Learning Outcomes: Upon successful completion of the program, students will be able to:

- Perform service, diagnosis, and repair operations on modern automobiles.
- Demonstrate professional habits required for entry-level employment and advancement in trades associated with automotive maintenance and repair.

Certificate of Achievement Requirements	Units
REQUIRED CORE:	43.5

AUTO 100	Introduction to Automotive Technology (4)
AUTO 101	Engine Repair (4)
AUTO 102	Basic Auto Electricity and Electronics (4)
AUTO 103	Engine Performance (4.5)
AUTO 104	Automotive Electrics (2.5)
AUTO 105	Automotive Electrical Circuits (2.5)
AUTO 106	Auto Brake Systems and Safety Inspection (4)
AUTO 107	Automatic Transmissions and Transaxle (4)
AUTO 108	Manual Transmissions and Drivetrains (4)
AUTO 111	Automotive Steering and Suspension (4)
AUTO 161	Supervised Auto Trade Experience I (4)
AUTO 162	Supervised Auto Trade Experience II (2) or COOP 91.4 - Auto Technology Work Experience (2)

TOTAL CERTIFICATE UNITS	43.5
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Associate in Science Degree Major Requirements	Units
Certificate Requirements (as described above)	43.5

Complete Competency Requirements and a general education pattern (MPC General Education, CSU General Education, or IGETC) for a total of 60 degree-applicable units (see pages 70-74).

TOTAL DEGREE UNITS	60
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Automotive Maintenance and Light Repair - Certificate of Achievement

This program provides students with the skills and knowledge required to obtain an entry-level position as a technician in the automotive service and repair industry.

Learning Outcomes: Upon successful completion of the program, students will be able to:

- Perform routine maintenance on a modern vehicle at the professional level.
- Perform basic service and repairs on modern automotive braking systems.
- Perform basic service and repairs on modern automotive steering and suspension systems.
- Develop professional work habits that promote a safe, productive and environmentally conscious work environment.
- Identify professional habits and apply these to promote themselves and the quality of their work.

Certificate of Achievement Requirements		Units
AUTO 100	Introduction to Automotive Technology	4
AUTO 102	Basic Auto Electricity and Electronics	4
AUTO 106	Auto Brake Systems and Safety Inspection	4
AUTO 111	Automotive Steering and Suspension	4
AUTO 161	Supervised Auto Trade Experience I (4) or COOP 91.4 - Auto Technology Work Experience (2)	2-4
TOTAL CERTIFICATE UNITS		18-20

Program Requirements, Courses and Learning Outcomes

Emission Specialist - Certificate of Achievement

This program is designed to prepare students for employment as Smog Check technicians. It meets the State of California Level 1 and Level 2 license requirements. Students who complete the program are eligible and prepared to take the Smog Check Inspector License Exam.

Learning Outcomes: Upon successful completion of the program, students will be able to:

- Correctly perform a State of California smog check inspection observing all applicable laws and regulations.
- Diagnose and repair emission related faults observing all application laws and regulations.
- Identify license requirements and successfully prepare for the Smog Check Inspector License Exam.
- Identify professional work habits and employ them to promote themselves and the quality of their work.

Certificate of Achievement Requirements		Units
AUTO 100	Introduction to Automotive Technology	4
AUTO 101	Engine Repair	4
AUTO 102	Basic Auto Electricity and Electronics	4
AUTO 103	Engine Performance	4.5
AUTO 104	Automotive Electrics	2.5
AUTO 105	Automotive Electrical Circuits	2.5
AUTO 170	Smog Check Inspection Procedures	2.5
AUTO 161	Supervised Auto Trade Experience I (4) or COOP 91.4 - Auto Technology Work Experience (2)	2-4
TOTAL CERTIFICATE UNITS		26-28

COURSE DESCRIPTIONS

AUTO 90 - Independent Study

.5-4 units • LG-P/NP • Total hours: 51 hours lab per unit by arrangement

This course provides a framework for this academic discipline, which is designed to enrich the student's experience beyond current curriculum offerings. The program of study, research, reading, or activity is tailored to student needs and interests. When the student has identified an instructor to supervise his/her program of study, the agreement is recorded on a form available in the Admissions and Records Office.

Advisory: Completion of or concurrent enrollment in ENGL 1A • Credit transferable: CSU

AUTO 100 - Introduction to Automotive Technology

4 units • LG-P/NP • Total hours: 51 hours lecture; 51 hours lab

This course provides an introduction to the automotive technology program and profession. A survey course, it covers the basic operation and maintenance of the modern automobile. Students get laboratory experience performing service and minor repairs.

GE Credit: MPC, Area E2

AUTO 101 - Engine Repair

4 units • LG-P/NP • Total hours: 34 hours lecture; 102 hours lab

This course covers repair and rebuilding of modern automotive engines. Topics include theory, disassembly, cleaning, inspection, diagnosis, and failure analysis. Provides preparation for Automotive Service Excellence (ASE) certification in A1 area. Portions of instruction may be offered online; may also be offered fully online.

Prerequisite or corequisite: AUTO 100

AUTO 102 - Basic Automotive Electricity and Electronics

4 units • LG-P/NP • Total hours: 59.5 hours lecture; 34 hours lab

This introductory course in automotive electricity/electronics is designed to provide the student with a solid foundation in electrical principles, including terminology and the operation and troubleshooting of electrical and electronic circuits and components. Portions of instruction may be offered online; may also be offered fully online.

AUTO 103 - Engine Performance

4.5 units • LG-P/NP • Total hours: 63.75 hours lecture; 38.25 hours lab

This course is a study of the engine sub-systems responsible for good engine performance, reduced emissions, and fuel economy. Systems to be covered include ignition, fuel, emission, and computer controls. This course meets the Level 1 requirements for a Smog Check Inspector License. Portions of instruction may be offered online; may also be offered fully online.

Prerequisites or corequisites: AUTO 100; AUTO 101; AUTO 102

AUTO 104 - Automotive Electrics

2.5 units • LG-P/NP • Total hours: 29.75 hours lecture; 38.25 hours lab

This course is a study of batteries, battery management, charging and starting systems found on modern automobiles. Topics include electric and hybrid electric powertrains. Portions of instruction may be offered online; may also be offered fully online.

Prerequisite or corequisite: AUTO 100 • Advisory: AUTO 102

AUTO 105 - Automotive Electrical Circuits

2.5 units • LG-P/NP • Total hours: 25.5 hours lecture; 51 hours lab

This course is a study of the electrical systems found in modern automobiles. Topics include electrical test equipment, wiring diagrams, lighting circuits, various advanced body electrical circuits, and controls. Primary emphasis is put on diagnosis, testing, and repair. This course, in combination with AUTO 104, covers preparation for ASE Certification in A6 area.

Prerequisite or corequisite: AUTO 100 • Advisory: AUTO 102

AUTO 106 - Automotive Brake Systems and Safety Inspection

4 units • LG-P/NP • Total hours: 51 hours lecture; 51 hours lab

This course is a study of automotive braking systems. Emphasis is placed on the theory, operation, diagnosis and repair of modern braking systems. This course is preparation for ASE Certification in A5 area.

Prerequisite or corequisite: AUTO 100 • Advisory: AUTO 102

AUTO 107 - Automatic Transmissions and Transaxle

4 units • LG-P/NP • Total hours: 51 hours lecture; 68 hours lab

This course covers theory, operation, and repair of automatic transmissions and transaxles. It includes practical experience in troubleshooting and rebuilding. This course is preparation for ASE Certification in A2 area.

Prerequisite or corequisite: AUTO 100 • Advisories: AUTO 103; AUTO 104

**AUTO 108 - Manual Transmissions and Drivetrains**

4 units • LG-P/NP • Total hours: 51 hours lecture; 51 hours lab

This course covers operation, service, and repair of manual transmissions and transaxles. Topics also include clutches, drive lines, differentials, four-wheel-drive transfer cases and rear axles. This course is preparation for ASE Certification in A3 area.

Prerequisite or corequisite: AUTO 100

AUTO 111 - Automotive Steering and Suspension

4 units • LG-P/NP • Total hours: 51 hours lecture; 51 hours lab

This course is a study of modern automotive steering and suspension systems. Topics include front-end geometry and alignment procedures; wheels, hubs and tires; suspension system design; and diagnosis and repair of steering systems. This course is preparation for ASE Certification in A4 area.

Prerequisite or corequisite: AUTO 100

AUTO 161 - Supervised Automotive Trade Experience I

4 units • LG-P/NP • Total hours: 51 hours lecture; 51 hours lab

This is a practical course designed to help students prepare for employment in the automotive service industry. Students develop professional work habits and professional communication skills in a functioning repair shop.

Prerequisite: AUTO 100 or equivalent

AUTO 162 - Supervised Automotive Trade Experience II

2 units • LG-P/NP • Total hours: 17 hours lecture; 51 hours lab

This class helps students learn basic air conditioning service procedures. It also further develops students' brake, suspension, and air conditioning service skills in a professional work environment

Prerequisites or corequisites: AUTO 106; AUTO 111

AUTO 170 - Smog Check Inspection Procedures

2.5 units • LG-P/NP • Total hours: 34 hours lecture; 34 hours lab

This course is an automotive technician training program for California's Smog Check Program. It meets the Bureau of Automotive Repair (BAR) Level 2 requirements for obtaining a Smog Inspector License. This training provides students the procedural knowledge, skills, and abilities needed to perform smog check inspections.

Advisories: AUTO 103