

AUTOMOTIVE TECHNOLOGY

The Automotive Technology Department offers courses designed to provide the skills and knowledge required for immediate employment as well as for students with a personal interest in automotive technology. The course of study in automotive technology may lead to an Associate of Science Degree or a vocational certificate.

Contact Information

Division: Applied Technology, Transportation, and Culinary Arts (T - 108)

Division Phone Number: (909) 384-4451

Faculty Chair: Alexander Cruz (alcruz@sbccd.edu), B.A.

Counselor Liaisons: Debbie Orozco (dorozco@sbccd.edu), M.A. and Patricia Jones (pjones@sbccd.edu), M.A.

- Automatic and Manual Transmission Associate of Science Degree (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/automatic-manual-transmission-as-degree/>)
- Automatic and Manual Transmission Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/automatic-manual-transmission-certificate-achievement/>)
- Automotive Clean Vehicle Technology Associate of Science Degree (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/automotive-clean-vehicle-as-degree/>)
- Automotive Clean Vehicle Technology Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/automotive-clean-vehicle-certificate/>)
- Automotive Engine Performance Associate of Science Degree (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/engine-performance-as-degree/>)
- Automotive Engine Performance Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/engine-performance-certificate-achievement/>)
- Automotive Preventative Maintenance Technician Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/preventative-maintenance-technician-certificate-achievement/>)
- Automotive Technician Associate of Science Degree (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/automotive-technician-as-degree/>)
- Automotive Technician Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/automotive-technician-certificate-achievement/>)
- Automotive Wheel Alignment and Brakes Associate of Science Degree (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/wheel-alignment-brakes-as-degree/>)
- Automotive Wheel Alignment and Brakes Certificate of Achievement (<http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/wheel-alignment-brakes-certificate-achievement/>)

[program-index/automotive-technology/wheel-alignment-brakes-certificate-achievement/](http://catalog.valleycollege.edu/degree-certificate-program-index/automotive-technology/wheel-alignment-brakes-certificate-achievement/))

AUTO 010 4 Units

Introduction to Hybrid and Electric Vehicle Technology

Lecture: 54 contact hours

Lab: 54 contact hours

This course explores the use of hybrid and electric battery power for vehicle transportation. Topics will include safety when using high voltage, maintenance, drivability, inverter, AC/DC power transfer and battery technology, physics of battery storage and hybrid generation systems. Electric vehicle applications and their integrated systems from many manufacturers will be discussed.

Associate Degree Applicable

AUTO 011 3 Units

Electric Vehicle (EV) and Alternative Fuel Vehicle

Lecture: 54 contact hours

Prerequisite: AUTO 010 and AUTO 065

Corequisite: AUTO 011L

This course explores the use of electric vehicle, hydrogen fuel cell and electric battery power for vehicle transportation. Topics will include safety when using high voltage, maintenance, drivability, inverter, AC/DC power transfer and battery technology, physics of battery storage and hydrogen fuel systems. Electric and fuel cell vehicle applications and their integrated systems from many manufacturers will be discussed.

Associate Degree Applicable

AUTO 011L 1 Unit

Electric Vehicle (EV) and Alternative Fuel Vehicle - Laboratory

Lab: 54 contact hours

Prerequisite/Corequisite: AUTO 011

This laboratory course explores the use of electric vehicle, hydrogen fuel cell and electric battery power for vehicle transportation. Topics will include safety when using high voltage, maintenance, drivability, inverter, AC/DC power transfer and battery technology, physics of battery storage and hydrogen fuel systems. Electric and fuel cell vehicle applications and their integrated systems from many manufacturers will be discussed.

Associate Degree Applicable

AUTO 050 3 Units

Automotive Brakes

Lecture: 54 contact hours

Corequisite: AUTO 050L

This course is designed for students and current technicians to gain knowledge and skills in automotive brake systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the brake system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test A-5.

Associate Degree Applicable

AUTO 050L 1 Unit

Automotive Brakes - Laboratory

Lab: 54 contact hours

Corequisite: AUTO 050

This laboratory course is designed for students and current technicians to gain knowledge and skills in automotive brake systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the brake system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test A-5.

Associate Degree Applicable

AUTO 052 3 Units**Automotive Suspension and Steering****Lecture:** 54 contact hours**Corequisite:** AUTO 052L

This course is designed for students and current technicians to gain knowledge and skills in automotive suspension and steering systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of suspension and steering systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable**AUTO 052L 1 Unit****Automotive Suspension and Steering - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 052

This laboratory course is designed for students and current technicians to gain hands-on knowledge and skills in automotive suspension and steering systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of suspension and steering systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable**AUTO 056 4 Units****Automotive Heating and Air Conditioning****Lecture:** 54 contact hours**Lab:** 54 contact hours

This course is an in-depth study of the design and operation of contemporary, domestic and import vehicle air conditioning/heating systems. Air conditioning and heating related parts will be disassembled, inspected and a determination made of the serviceability of existing parts. Emphasis is placed on problem diagnosis of and repair procedures for these systems. This course also offers an introduction to Automatic A/C and Comfort Control Systems, and recovery and recycling of refrigerants.

Associate Degree Applicable**AUTO 062 3 Units****Engine Performance****Lecture:** 54 contact hours**Corequisite:** AUTO 062L

This course provides an in-depth study of the design and operation of domestic and import ignition and fuel systems, emissions systems, as well as Hybrid and electric vehicle safety procedures. Major areas of study include electronic, and computer control ignition and fuel injection systems. Emphasis is placed on the correct diagnosis of and repair procedures for these systems. This course covers the diagnosis and repair/replacement of major components: all sensors, injectors, fuel pumps, and interpretation of computer related malfunctions. The use of current diagnostic test equipment used in today's industry and strategies necessary to determine needed repairs are covered.

Associate Degree Applicable**AUTO 062L 1 Unit****Engine Performance - Laboratory****Lab:** 54 contact hours**Prerequisite/Corequisite:** AUTO 062

This laboratory course provides an in-depth study of the design and operation of domestic and import ignition and fuel systems, emissions systems, as well as Hybrid and electric vehicle safety procedures. Major areas of study include electronic, and computer control ignition and fuel injection systems. Emphasis is placed on the correct diagnosis of and repair procedures for these systems. This course covers the diagnosis and repair/replacement of major components: all sensors, injectors, fuel pumps, and interpretation of computer related malfunctions. The use of current diagnostic test equipment used in today's industry and strategies necessary to determine needed repairs are covered.

Associate Degree Applicable**AUTO 064 4 Units****Auto/Truck Electrical Systems****Lecture:** 54 contact hours**Lab:** 54 contact hours

This course covers basic electrical theory, use of meters, test equipment, wiring diagrams, diagnosis and repair/replacement of major electrical components of automobiles and trucks. Emphasis is placed on diagnosis of starting systems, charging systems, and electrical circuits such as lights and batteries. (This course is also offered as HMDT 064)

Associate Degree Applicable**AUTO 065 4 Units****Electrical Systems Diagnosis and Repair****Lecture:** 54 contact hours**Lab:** 54 contact hours

This course provides students with the knowledge necessary to diagnose and repair automotive electrical malfunctions. Topics include lighting systems, electrical instruments and accessories, electrical door components, air bags, wiring diagrams, and alarm systems. Emphasis is placed on problem diagnosis of and repair procedures for these systems.

Associate Degree Applicable**AUTO 075 3 Units****Automatic Transmissions and Transaxles****Lecture:** 54 contact hours**Corequisite:** AUTO 075L

This course is designed for students and current technicians to gain knowledge and skills in automotive transmissions and transaxle systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on operation, inspection, diagnosis, and servicing of the transmissions and transaxles system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable**AUTO 075L 1 Unit****Automotive Transmissions and Transaxles - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 075

This laboratory course is designed for students and current technicians to gain knowledge and skills in automotive transmission and transaxle systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on operation, inspection, diagnosis, and servicing of the transmission and transaxle systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable

AUTO 077 3 Units**Manual Transmissions and Transaxles****Lecture:** 54 contact hours**Corequisite:** AUTO 077L

This course is designed for students and current technicians to gain knowledge and skills in automotive manual transmissions and differential systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the manual transmission and differential systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable**AUTO 077L 1 Unit****Manual Transmissions and Transaxles - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 077

This course is designed for students and current technicians to gain knowledge and skills in automotive manual transmission and differential systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the manual transmission and differential systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable**AUTO 084 3 Units****General Automotive Technology****Lecture:** 54 contact hours**Corequisite:** AUTO 084L

This course is designed for students and current technicians to gain knowledge and skills in automotive systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the automotive systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable**AUTO 084L 1 Unit****General Automotive Technology - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 084

This laboratory course is designed for students and current technicians to gain knowledge and skills in automotive systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on identification, inspection, diagnosis, and servicing of the automotive systems.

Associate Degree Applicable**AUTO 090 3 Units****Engine Repair****Lecture:** 54 contact hours**Corequisite:** AUTO 090L

This course is designed for students and current technicians to gain knowledge and skills in automotive engine repair system. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on operation, inspection, diagnosis, and servicing of the engine repair system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable**AUTO 090L 1 Unit****Engine Repair - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 090

This laboratory course is designed for students and current technicians to gain knowledge and skills in automotive engine repair systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the engine repair system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test.

Associate Degree Applicable**AUTO 098 1-4 Units****Automotive Technology Work Experience Experience****WRKEX:** 300 contact hours

Supervised training, in the form of on the job employment that will enhance the student's knowledge in the selected field of study. The student's major and job must match. For paid work, 75 hours = 1 unit; for volunteer work, 60 hours = 1 unit. Students may earn a total of 16 units toward graduation in Work Experience 098 courses. See department for specific guidelines.

Associate Degree Applicable**AUTO 650 Noncredit****Automotive Brakes****Lecture:** 54 contact hours**Corequisite:** AUTO 650L

This noncredit course is designed for students and current technicians to gain knowledge and skills in automotive brake systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the brake system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test A-5. This course may also be for credit as AUTO 050.

AUTO 650L Noncredit**Automotive Brakes - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 650

This noncredit laboratory course is designed for students and current technicians to gain knowledge and skills in automotive brake systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the brake system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test A-5. This course may also be offered for credit as AUTO 050L.

AUTO 652 Noncredit**Automotive Suspension and Steering****Lecture:** 54 contact hours**Corequisite:** AUTO 652L

This noncredit course is designed for students and current technicians to gain knowledge and skills in automotive suspension and steering systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of suspension and steering systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test. This course may also be offered for credit as AUTO 052.

AUTO 652L Noncredit**Automotive Suspension and Steering - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 652

This noncredit laboratory course is designed for students and current technicians to gain hands-on knowledge and skills in automotive suspension and steering systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of suspension and steering systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test. This course may also be offered for credit as AUTO 052L.

AUTO 675 Noncredit**Automatic Transmissions and Transaxles****Lecture:** 54 contact hours**Corequisite:** AUTO 075L

This noncredit course is designed for students and current technicians to gain knowledge and skills in automotive transmissions and transaxle systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on operation, inspection, diagnosis, and servicing of the transmissions and transaxles system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test. This course may also be offered for credit as AUTO 075.

AUTO 675L Noncredit**Automotive Transmissions and Transaxles - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 675

This noncredit laboratory course is designed for students and current technicians to gain knowledge and skills in automotive transmission and transaxle systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on operation, inspection, diagnosis, and servicing of the transmission and transaxle systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test. This course may also be offered for credit as AUTO 075L.

AUTO 684 Noncredit**General Automotive Technology****Lecture:** 54 contact hours**Corequisite:** AUTO 684L

This noncredit course is designed for students and current technicians to gain knowledge and skills in automotive systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the automotive systems. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test. This course may also be offered for credit as AUTO 084.

AUTO 684L Noncredit**General Automotive Technology - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 684

This noncredit laboratory course is designed for students and current technicians to gain knowledge and skills in automotive systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on identification, inspection, diagnosis, and servicing of the automotive systems. This course may also be offered for credit as AUTO 084L.

AUTO 685L Noncredit**Auto Shop Practices****Lab:** 108 contact hours

This noncredit course is designed for students and current technicians to gain knowledge and skills in automotive systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the automotive systems. This course provides the student with additional work experience and gives them the opportunity to complete unfinished tasks from other automotive mechanical courses.

AUTO 690 Noncredit**Engine Repair****Lecture:** 54 contact hours**Corequisite:** AUTO 690L

This noncredit course is designed for students and current technicians to gain knowledge and skills in automotive engine repair system. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on operation, inspection, diagnosis, and servicing of the engine repair system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test. This course may also be offered for credit as AUTO 090.

AUTO 690L Noncredit**Engine Repair - Laboratory****Lab:** 54 contact hours**Corequisite:** AUTO 690

This noncredit laboratory course is designed for students and current technicians to gain knowledge and skills in automotive engine repair systems. This course covers the safety procedures, ethics, and diversity in the automotive industry while focusing on inspection, diagnosis, and servicing of the engine repair system. This course may be used in preparation for the Automotive Service Excellence (ASE) National Test. This course may also be offered for credit as AUTO 090L.