

# AUTOMOTIVE TECHNOLOGY

It is the mission of the Automotive Department of Victor Valley Community College to provide quality automotive instruction to a diverse community of students; the array of courses offered shall serve the educational needs of the beginning student as well as the employed professional. Through industry input the department shall strive to create and maintain the most up to date curriculum based on current industry trends. The department will acquire and maintain the appropriate equipment that will augment the current course curriculum.

Each year the Bureau of Labor Statistics lists the need for Automotive Technicians as one of the nation's highest. This shortage of well-trained technicians has been created by the technological advances caused by the addition of the computerized engine controls and the need to control automotive pollution.

VVC's automotive program is designed to give the student a thorough and complete knowledge of the basics of the modern automobile. The program is capable of training the student to entry-level performance on the latest industry approved equipment.

## Career Opportunities

Federally recognized ASE certification in eight (8) categories, Parts Salesperson, Repair Shop Owner or Operator State Certified Pollution Control Technician, Tune-up Technician

## Faculty

Bennett, Harry Lee

Coultas, Steven

Shaner, Keith

## Automotive Service Management, AS

**State Control Number:** 41279

**Program Code:** ASM.AS

**Approved for Federal Financial Aid:** Yes

Upon completion of these courses the student should be prepared to pass the ASE C1 Automotive Service Consultant exam and be prepared for employment as a professional automotive service advisor and or shop manager.

To earn this degree, complete the major coursework with "C" grades or better and all of the following graduation requirements: 60 minimum degree-applicable units (including a maximum 4 units of activity); 2.0 minimum overall GPA; 12 degree-applicable units through VVC; Information Competency; Global Citizenship; Kinesiology, and the VVC General Education pattern (<https://catalog.vvc.edu/degrees-certificates/vvcge/#vvcge>). Courses may count in one area only, either in the major or in a general education category. Courses counted in one AA/AS major may not be used in another AA/AS major.

Code	Title	Units
<b>Required Courses</b>		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 58	Automotive Lubrication Technician	2.0
AUTO 77	Automotive Service Writing and Shop Management	3.0

Code	Title	Units
AUTO 77L	Automotive Service Writing and Shop Manager Laboratory	2.0
AUTO 77.1	Automotive Leadership and Team Building	3.0
AUTO 77.2	Automotive Safety Training for Managers	3.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
<b>Total Units</b>		<b>19</b>

## Automotive Technology, AS

**State Control Number:** 04946

**Program Code:** AUTO.AS

**Approved for Federal Financial Aid:** Yes

The Automotive Technology major requires 18 units from any of the certificates or from any Automotive Technology courses. AUTO 138 Work Experience Education Automotive may be used as elective credit, but may not be used to fulfill major requirements.

To earn this degree, complete the major coursework with "C" grades or better and all of the following graduation requirements: 60 minimum degree-applicable units (including a maximum 4 units of activity); 2.0 minimum overall GPA; 12 degree-applicable units through VVC; Information Competency; Global Citizenship; Kinesiology, and the VVC General Education pattern (<https://catalog.vvc.edu/degrees-certificates/vvcge/#vvcge>). Courses may count in one area only, either in the major or in a general education category. Courses counted in one AA/AS major may not be used in another AA/AS major.

Code	Title	Units
<b>Required Courses</b>		
Complete 18 units from the Automotive Technology (AUTO) discipline.		18.0
Select courses numbered 50-199, except 138.		
<b>Total Units</b>		<b>18</b>

## Automotive Alternative Propulsion Certificate of Achievement

**State Control Number:** 37006

**Program Code:** AUTOALTP.CERT

**Approved for Federal Financial Aid:** Yes

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform diagnosis and repairs as an Alternative Propulsion Technician.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 82.0	Automotive Electrical Repair	4.0
AUTO 89.3	Introduction to Hybrid, Electric Vehicle And Alternative Propulsion Vehicle Technology	4.0
AUTO 89.4	Hybrid Vehicle Propulsion	4.0
AUTO 89.5	Electric Vehicle and Alternative Propulsion	4.0

Code	Title	Units
AUTO 89.6	Advanced Hybrid, Electric Vehicle, and Alternative Propulsion Technology	4.0
<b>Total Units</b>		<b>26</b>

## Automotive Brake and Suspension Specialist Technician Certificate of Achievement

**State Control Number:** 37007  
**Program Code:** ABAS.CERT  
**Approved for Federal Financial Aid:** No

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform automotive brake and suspension diagnosis and repair.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 60	Automotive Suspension and Alignment	4.0
AUTO 61.0	Automotive Brakes	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
<b>Total Units</b>		<b>14</b>

## Automotive Dealership Technician Certificate of Achievement

**State Control Number:** 40630  
**Program Code:** AUTODEALTECH.CERT  
**Approved for Federal Financial Aid:** Yes

The courses that comprise the certificate contain the skill sets and knowledge necessary to seek employment as an automotive service technician in a new car manufacturer dealership service department.

Code	Title	Units
<b>Required Courses</b>		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 51A	Engine Repair	4.0
AUTO 55.0	Manual Transmission and Differential Overhaul	4.0
AUTO 56.0	Automatic Transmission and Overhaul	4.0
AUTO 57.1	Automotive Brakes, Theory and Function	4.0
AUTO 60.1	Automotive Suspension, Steering and Alignment	4.0
AUTO 77	Automotive Service Writing and Shop Management	3.0
AUTO 77L	Automotive Service Writing and Shop Manager Laboratory	2.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 80.1	Automotive Electrical & Electronics I	4.0
AUTO 97.0	Automotive Air Conditioning and Heating Systems	4.0
AUTO 99.1	Light Duty Diesel Systems 1	4.0
<b>Total Units</b>		<b>43</b>

## Automotive Detailer and Porter Certificate of Achievement

**State Control Number:** 37076  
**Program Code:** ADP.CERT  
**Approved for Federal Financial Aid:** No

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform vehicle detailing and porter duties.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 58	Automotive Lubrication Technician	2.0
AUTO 62	Automotive Detailing	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
<b>Total Units</b>		<b>12</b>

## Automotive Electrical Specialist Technician Certificate of Achievement

**State Control Number:** 38352  
**Program Code:** AUTOELSC.CERT  
**Approved for Federal Financial Aid:** Yes

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform diagnosis and repairs as an Automotive Electrical Specialist.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 80.1	Automotive Electrical & Electronics I	4.0
AUTO 80.2	Automotive Electrical & Electronics II	4.0
AUTO 82.0	Automotive Electrical Repair	4.0
<b>Total Units</b>		<b>18</b>

## Automotive Emission Testing Specialist Certificate of Achievement

**State Control Number:** 38355  
**Program Code:** AUTOETS.CERT  
**Approved for Federal Financial Aid:** Pending (<https://catalog.vvc.edu/student-resources/financing-education/#Pending-FedAid>)

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform testing, diagnosis, and repairs as an Emission Testing Specialist.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 85.5	Engine and Emission Control Training	4.0

Code	Title	Units
AUTO 85.6	Emission Control Training	4.0
AUTO 85D	BAR Specified Diagnostic and Repair Training	4.0
<b>Total Units</b>		<b>18</b>

## Automotive Engine Performance Specialist Certificate of Achievement

**State Control Number:** 38354

**Program Code:** AUTOEPS.CERT

**Approved for Federal Financial Aid:** Yes

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform diagnosis and repairs as an Alternative Propulsion Technician.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 79.1	Basic Automotive Engine Performance and Emission Controls	4.0
AUTO 79.2	Advanced Automotive Engine Performance Emission Controls	4.0
AUTO 79.3	Advanced Automotive Engine Performance Diagnostics	4.0
<b>Total Units</b>		<b>18</b>

## Automotive Engine Specialist Certificate of Achievement

**State Control Number:** 38368

**Program Code:** AUTOENS.CERT

**Approved for Federal Financial Aid:** Yes

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform diagnosis and repairs as an Automotive Engine Specialist Technician.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 51A	Engine Repair	4.0
AUTO 51B	Advanced Engine Diagnosis and Repair	4.0
AUTO 51C	Advanced Engine Diagnosis and Replacement	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
<b>Total Units</b>		<b>18</b>

## Automotive Heating and Air Conditioning Specialist Certificate of Achievement

**State Control Number:** 38356

**Program Code:** AUTOHAACS.CERT

**Approved for Federal Financial Aid:** Yes

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform diagnosis and repairs as an Air Conditioning Specialist.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 80.1	Automotive Electrical & Electronics I	4.0
AUTO 80.2	Automotive Electrical & Electronics II	4.0
AUTO 97.0	Automotive Air Conditioning and Heating Systems	4.0
<b>Total Units</b>		<b>18</b>

## Automotive Service Advisor and Manager Certificate of Achievement

**State Control Number:** 36999

**Program Code:** AUTOSERA&M.CERT

**Approved for Federal Financial Aid:** Yes

Upon completion of these courses the student should be prepared to pass the ASE C1 Automotive Service Consultant exam and be prepared for employment as a professional automotive service advisor and or shop manager.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 77	Automotive Service Writing and Shop Management	3.0
AUTO 77.1	Automotive Leadership and Team Building	3.0
AUTO 77.2	Automotive Safety Training for Managers	3.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 77L	Automotive Service Writing and Shop Manager Laboratory	2.0
BET 101	Beginning Keyboarding/Typing	1.0
<b>Total Units</b>		<b>18</b>

## Automotive Transmission Specialist Technician Certificate of Achievement

**State Control Number:** 37008

**Program Code:** ATS.CERT

**Approved for Federal Financial Aid:** Yes

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform diagnosis and repairs as an Automotive Transmission Specialist Technician

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 55.0	Manual Transmission and Differential Overhaul	4.0
AUTO 56.0	Automatic Transmission and Overhaul	4.0
AUTO 56A	Transmission Computer Systems	4.0

Code	Title	Units
AUTO 77.3	Automotive Workplace Professionalism	2.0
<b>Total Units</b>		<b>18</b>

## Introduction to Automotive Drivability Theory Certificate of Achievement

**State Control Number:** 41320

**Program Code:** IADT.CERT

**Approved for Federal Financial Aid:** Pending (<https://catalog.vvc.edu/student-resources/financing-education/#Pending-FedAid>)

The courses included in this certificate will introduce the student to automotive systems related to drivability theory. Topics covered will include basic electricity, computer controls, ignition systems, fuel systems, emissions controls, and workplace professionalism.

Code	Title	Units
<b>Required Courses</b>		
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 80.6	Introduction to Automotive Electricity	4.0
AUTO 85.1	Introduction to Engine Performance Theory	4.0
AUTO 85.2	Common Sense Approach to Computer Diagnosis	4.0
AUTO 85.3	Ignition and Fuel System Theory Diagnosis	4.0
<b>Total Units</b>		<b>18</b>

## Light Duty Diesel Technician Certificate of Achievement

**State Control Number:** 37000

**Program Code:** LDDT.CERT

**Approved for Federal Financial Aid:** Yes

When these classes are completed with a grade of a C or better, the student should have the entry level skills to perform diagnosis and repairs as a Light Duty Diesel Technician.

Code	Title	Units
<b>Required Courses</b>		
Complete all of the following with a C or better		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 77.3	Automotive Workplace Professionalism	2.0
AUTO 99.1	Light Duty Diesel Systems 1	4.0
AUTO 99.2	Light Duty Diesel Systems 2	4.0
AUTO 99.3	Light Duty Diesel Systems 3	4.0
AUTO 99.4	Light Duty Diesel Systems 4	4.0
<b>Total Units</b>		<b>22</b>

## Automotive Technology Courses

### AUTO 025 Introduction to the Dealership Technician Program (0.0 Units)

This course will enhance the experience of an automotive student who is selected to participate in the Dealership Technician Program. This course will expose the student to the wide range of support programs at VVC, San Bernardino County, and the state to help the student succeed.

Lecture Hours: 18.0

Transfer: Not transferable

### AUTO 050.1 Life Skills Relating to Vehicle Ownership & Operation (0.0 Units)

This course uses a common sense approach to operating and maintaining a vehicle for the average motorist. Topics include safety, purchasing, insuring, maintenance, road side emergencies, picking the right repair shop, noises, and day to day responsibilities.

Lecture Hours: 54.0

Transfer: Not transferable

### AUTO 050.2 How to Research and Purchase a Car (0.0 Units)

This course explores how to choose and determine the vehicle that fits your needs. Topics covered will include negotiation, finance, warranty, and true cost of owning a vehicle.

Lecture Hours: 36.0

Transfer: Not transferable

### AUTO 050.3 How to Keep Your Car Smog Inspection Ready (0.0 Units)

This course covers how to maintain your vehicle so when your biannual smog inspection comes due you will know how to proceed. Topics covered will include general maintenance, what a smog inspection measures, inspection failures, and consumer help.

Lecture Hours: 36.0

Transfer: Not transferable

### AUTO 050.4 Auto 911 (0.0 Units)

This course targets the new driver giving them the skills to safely operate their vehicle. The course will cover purchasing, minor maintenance, tire condition, day to day driving responsibilities, minor road side repairs, traffic accident responsibilities.

Lecture Hours: 54.0

Transfer: Not transferable

### AUTO 050.5 Auto 911 Lab Ownership & Operation (0.0 Units)

This lab course targets the student who has an interest in performing minor repair and maintenance on their vehicle. They will practice the skills in a shop/lab setting after they take and pass the required shop safety component.

Lab Hours: 54.0

Transfer: Not transferable

### AUTO 050.6 Automotive Lab Ownership & Operation (0.0 Units)

This lab course targets the student who has an interest in performing minor repair and maintenance on their vehicle. They will practice the skills in a shop/lab setting after they take and pass the required shop safety component.

Lab Hours: 108.0

Transfer: Not transferable

### AUTO 050.7 Electrical Volt Drops Explained (0.0 Units)

This course covers electrical voltage drops in theory and practical applications. Topics covered will include voltage drops performed hypothetically on wiring diagrams and simulated circuit voltage drops.

Lecture Hours: 36.0

Transfer: Not transferable

### AUTO 50 Introduction to Automotive Technology (4.0 Units)

This course provides the student with a basic knowledge of automotive systems and components. Information covered will serve as a foundation and prerequisite for advanced automotive classes. Topics covered will include safety, tool and shop equipment uses, industry practices, technician certification, theory and design of the major automotive systems.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 50.3 Survival Guide for the Motorist (3.0 Units)**

This course uses a common sense approach to operating and maintaining a vehicle for the average motorist. Topics include safety, purchasing, insuring, maintenance, road side emergencies, picking the right repair shop, noises, and day to day responsibilities.

Lecture Hours: 54.0

Transfer: Not transferable

**AUTO 51A Engine Repair (4.0 Units)**

In this course, the student will gain knowledge necessary to effectively evaluate an automotive internal combustion engine by learning the various processes of diagnostic procedures. During the course, the student will also be able to demonstrate their understanding of both the lubrication and cooling systems that are incorporated in the engine components.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 51B Advanced Engine Diagnosis and Repair (4.0 Units)**

This course covers engine advanced diagnosis, maintenance and repair. All related to different engine designs, including gasoline and diesel engines, cooling and lubrication systems.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 51C Advanced Engine Diagnosis and Replacement (4.0 Units)**

This course will cover the evaluation of internal engine failures where the student will be required to demonstrate an understanding of proper removal and replacement of the automotive engine by following manufacturing guidelines.

Prerequisite(s): AUTO 50 and AUTO 51B, Minimum grade of C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 55.0 Manual Transmission and Differential Overhaul (4.0 Units)**

This course covers diagnosis and repair of the components of standard transmission systems and differential systems, gears, synchronizers, bearings, clutches, and electronic controls. Standard transmissions and related parts will be disassembled, inspected and determination made of the serviceability of existing parts. The need for replacement parts will be established as the components are disassembled, inspected and reassembled.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 56.0 Automatic Transmission and Overhaul (4.0 Units)**

This course covers diagnosis and repair of the components of automatic transmission systems: clutches, bands, servo valve bodies, hydraulic pumps, cases, governors, torque converters, and electronic controls.

Automatic transmissions and related parts will be disassembled, inspected and determination made of the serviceability of existing parts. The need for replacement parts will be established as the components are disassembled, inspected and reassembled.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 56A Transmission Computer Systems (4.0 Units)**

This course covers techniques used by the automotive industry to diagnose and repair transmission computer systems. Instruction will cover the diagnosis and repair of runability problems relating to electronic malfunctions of the computer controlled transmission.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 27.0

Transfer: Not transferable

**AUTO 57.1 Automotive Brakes, Theory and Function (4.0 Units)**

Theory and Function. This course covers safety practices, theory, applications, braking systems, and antilock brakes.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 58 Automotive Lubrication Technician (2.0 Units)**

This course covers techniques used by the automotive industry to perform routine preventative maintenance. Instruction will cover changing automotive fluids, lubrication, safety inspections, installing filters and ignition components.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 27.0; Lab Hours: 27.0

Transfer: Not transferable

**AUTO 59.0 Automotive Tire Technician (2.0 Units)**

This course covers techniques used by the automotive industry to perform duties of a tire technician. Instruction will cover brake and suspension inspections, mounting, balancing, and repairing tires.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 27.0; Lab Hours: 27.0

Transfer: Not transferable

**AUTO 060.1 Automotive Suspension, Steering and Alignment (0.0 Units)**

This course covers the components and principles of operation of steering and suspension systems used on automobiles and light trucks along with the diagnosis, repair and alignment procedures used for those vehicles.

Lecture Hours: 36.0

Transfer: Not transferable

**AUTO 060.5 Advanced Alignment and Adas (advanced Driver Assistance Systems) (0.0 Units)**

Advanced Alignment and ADAS (Advanced Driver Assistance Systems)

This class will cover operation, calibration, diagnosis and repair of driver assistance systems including: 1. Perimeter camera systems 2. Parking warning and assist systems 3. Lane departure warning and lane centering systems 4. Blind spot monitoring 5. Adaptive Cruise control 6. Accident avoidance and pedestrian crash avoidance mitigation.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 60 Automotive Suspension and Alignment (4.0 Units)**

This course covers diagnosis and repair of the components of the automotive suspension system. All related parts of the suspension and steering are inspected and determination of serviceability is made. Alignment of the front and rear of the vehicles will be covered, both manual and computer alignment.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable



**AUTO 60.1 Automotive Suspension, Steering and Alignment (4.0 Units)**

This course covers the components and principles of operation systems used on automobiles and light trucks along with the diagnosis, repair and alignment procedures used for those vehicles.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 60.2 Advanced Alignment (4.0 Units)**

This course covers the advanced diagnosis, adjustments and alignment of automotive steering systems using both analog and digital alignment equipment.

Prerequisite(s): AUTO 60.1, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 60.5 Advanced Alignment and ADAS (advanced Driver Assistance Systems) (4.0 Units)**

Advanced Alignment and ADAS (Advanced Driver Assistance Systems)

This class will cover operation, calibration, diagnosis and repair of driver assistance systems including: 1. Perimeter camera systems 2. Parking warning and assist systems 3. Lane departure warning and lane centering systems 4. Blind spot monitoring 5. Adaptive Cruise control 6. Accident avoidance and pedestrian crash avoidance mitigation.

Prerequisite(s): AUTO 60.1 and AUTO 60, Minimum grade C

Recommended Preparation: AUTO 79.1, AUTO 80.1 or AUTO 82.0

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 61.0 Automotive Brakes (4.0 Units)**

This course covers diagnosis and repair of the components of automotive brake systems: basic hydraulics, drum brakes, disc brakes, turning drum and rotors and related parts will be disassembled inspected and determination made of the serviceability of existing parts. The need for replacement parts will be established as the components are disassembled inspected and reassembled.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 62 Automotive Detailing (4.0 Units)**

This course provides students with the knowledge and skills necessary to correctly perform an automotive detail. Topics covered will include exterior paint polishing and treatment, interior and upholstery cleaning techniques, proper chemical and equipment usage, and dealership porter responsibilities.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 77 Automotive Service Writing and Shop Management (3.0 Units)**

This course prepares students to manage an automotive repair shop. Topics covered include work order preparation, parts and labor estimating, parts ordering, office and shop organization, writing a legal work order, sales skills, and customer relations.

Lecture Hours: 54.0

Transfer: Not transferable

**AUTO 77.1 Automotive Leadership and Team Building (3.0 Units)**

This course provides the student with the knowledge necessary to successfully build a functional automotive team and be an effective automotive team leader. Topics covered will include automotive industry team development, recruitment and retention of team members. The course will also cover automotive industry motivation and compensation and the creation and maintenance of employee policies and procedures handbooks.

Lecture Hours: 54.0

Transfer: Not transferable

**AUTO 77.2 Automotive Safety Training for Managers (3.0 Units)**

This course provides the student with the knowledge necessary to initiate and maintain an effective automotive safety training program in an automotive repair facility. Topics covered will include employee "Right to Know" laws and training requirements, safety audits and facility assessment, hazardous communications guidelines, personal protective equipment, and material handling and storage.

Lecture Hours: 54.0

Transfer: Not transferable

**AUTO 77.3 Automotive Workplace Professionalism (2.0 Units)**

This course presents information for working professionals in the automotive industry. Topics covered will include etiquette, dress, ethics, diversity, accountability, organization, communication and conflict resolution as they apply to the automotive industry.

Lecture Hours: 36.0

Transfer: Not transferable

**AUTO 77L Automotive Service Writing and Shop Manager Laboratory (2.0 Units)**

This course prepares students to effectively write automotive service orders and manage an automotive repair shop. Topics include labor guide look up and labor calculation, work order preparation, parts and labor estimating, parts ordering, office and shop organization, writing a legal work order, sales skills, and customer relations.

Lab Hours: 108.0

Transfer: Not transferable

**AUTO 79.1 Basic Automotive Engine Performance and Emission Controls (4.0 Units)**

This course provides theory and hands-on experience in the fundamentals of automotive engine management including: basic fuel injection, ignition systems and emission systems. The focus is then placed on foundational engine management components and systems including: fuel injection, electronic ignition and emission control systems with an emphasis on servicing, troubleshooting, diagnosis and repair of common engine management malfunctions.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 79.2 Advanced Automotive Engine Performance Emission Controls (4.0 Units)**

This course provides theory and hands-on experience in the fundamentals of automotive engine management including: basic fuel injection, ignition systems and emission systems. The focus is then placed on foundational engine management components and systems including: fuel injection, electronic ignition and emission control systems with an emphasis on servicing, troubleshooting, diagnosis and repair of common engine management malfunctions.

Prerequisite(s): AUTO 79.1, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 79.3 Advanced Automotive Engine Performance Diagnostics (4.0 Units)**

This course provides advanced-level theory and hands-on lab experience in the area of Diagnostics related to Automotive engine management systems including: fuel injection, ignition systems and emission systems. This class will also focus on electronic components, their functions and application to Automotive engine control systems. Projects will include the construction of electrical circuits for the application understanding solid-state device functions and applications. Additionally, this course will have preparatory instruction for the technician-level ASE L-1 (Advanced Engine Performance) Trade examination. The focus is placed on advanced engine management components and emission systems including: Fuel Delivery, Fuel Injection, Direct Injection, Variable Valve Timing, Variable Valve Lift, and Variable Displacement engine systems, Electronic Ignition, Emission Control Systems, computer networks and Bus systems with an emphasis on the interaction of these systems on late-model vehicles. Advanced-level troubleshooting techniques including the use of Diagnostic Scanners to interface with vehicle onboard computer systems for data analysis, electronics and their function, and Lab Scopes for the testing of computer controlled electrical circuits are large components in the lab portion of this class.

Prerequisite(s): AUTO 79.2, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 80.1 Automotive Electrical & Electronics I (4.0 Units)**

This course covers the theory of electricity, use of meters and test equipment, use of wiring diagrams, diagnosis and repair or replacement of major electrical components of automotive and light trucks. Major areas of study include batteries, starting, charging and ignition systems as well as electrical accessories. This course will assist the student in preparing for the ASE A6 exam.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 80.2 Automotive Electrical & Electronics II (4.0 Units)**

This course covers electricity and electronics, use of electrical test equipment, wiring diagrams, diagnosis and repair/replacement/diagnosis of major electrical components of automobiles.

Prerequisite(s): AUTO 80.1, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 80.6 Introduction to Automotive Electricity (4.0 Units)**

This course covers electrical theory, basic electricity, electrical safety procedures, electrical diagnostic equipment, and industry approved procedures to diagnose and repair electrical malfunctions in the automobile.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 72.0

Transfer: Not transferable

**AUTO 82.0 Automotive Electrical Repair (4.0 Units)**

This course provides the student with the knowledge necessary to diagnose and repair automotive malfunctions including lighting systems, electrical instruments and accessories, electrical door components, air bags, and alarm systems. Information covered will include electrical fundamentals, test equipment, electrical circuits, electrical malfunctions, wiring diagrams, and electrical diagnosis.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 085.5 Engine and Emission Control Training (0.0 Units)**

The Engine and Emission Control Training is intended to provide students with fundamental knowledge of engine and emission control theory, design and operation. This course satisfies the BAR (Bureau of Automotive Repair) requirements for Level One Training.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 085.6 Emission Control Training Level 2 (0.0 Units)**

Emission Control Training is intended to provide students with knowledge of emission control theory, design and operation. This course satisfies the BAR (Bureau of Automotive Repair) requirements for Level Two Training.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 085.8 Smog Technician Update (0.0 Units)**

BAR (Bureau of Automotive Repair) Smog Repair Technician 12 Hour Update

Lecture Hours: 9.0; Lab Hours: 4.5

Transfer: Not transferable

**AUTO 085D BAR Specified Diagnostic and Repair Training (0.0 Units)**

This course covers information required by the Bureau of Automotive Repair pertaining to diagnosis and repair of emission systems. Topics covered are: safety, electrical, emissions, and diagnostic strategies.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 85.1 Introduction to Engine Performance Theory (4.0 Units)**

This course covers engine performance theory and techniques used by the automotive industry to diagnose and repair driveability malfunctions.

Lecture Hours: 72.0

Transfer: Not transferable

**AUTO 85.2 Common Sense Approach to Computer Diagnosis (4.0 Units)**

This course covers the operational theory of automotive computers and a common sense approach for diagnosis and repair. Topics will include how to analyze data stream and how the data affects computer operation.

Lecture Hours: 72.0

Transfer: Not transferable

**AUTO 85.3 Ignition and Fuel System Theory Diagnosis (4.0 Units)**

This course will introduce the student to the ignition and fuel systems theory and cover common malfunctions on the modern automobile.

Lecture Hours: 72.0

Transfer: Not transferable

**AUTO 85.5 Engine and Emission Control Training (4.0 Units)**

The Engine and Emission Control Training is intended to provide students with fundamental knowledge of engine and emission control theory, design and operation. This course satisfies the BAR (Bureau of Automotive Repair) requirements for Level One Training.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 85.6 Emission Control Training (4.0 Units)**

Emission Control Training is intended to provide students with knowledge of emission control theory, design and operation. This course satisfies the BAR (Bureau of Automotive Repair) requirements for Level Two Training.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 85D BAR Specified Diagnostic and Repair Training (4.0 Units)**

This course covers information required by the Bureau of Automotive Repair pertaining to diagnosis and repair of emission systems. Topics covered are: safety, electrical, emissions, and diagnostic strategies.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 89.3 Introduction to Hybrid, Electric Vehicle And Alternative Propulsion Vehicle Technology (4.0 Units)**

This course explores the use of Hybrid, Electric power and alternative fuels for the vehicle transportation. Physics of battery storage, Hybrid generation systems, Electric vehicle applications and tier integrated systems from many manufacturers will be discussed. This course is suitable for students entering into and automotive alternative fuels or power generation and energy technology field. This course is a required course for the Alternative Vehicle Propulsion Certificate/Degree.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 89.4 Hybrid Vehicle Propulsion (4.0 Units)**

This course explores the use of Hybrid vehicle propulsion for vehicle transportation. Topics will include: safety when using high voltage, Hybrid vehicle drive systems, Battery technology, Hybrid generation systems, energy management systems, Hybrid vehicle peripheral systems. Hybrid vehicle maintenance, service, diagnostic and repair procedures will also be covered.

Prerequisite(s): AUTO 89.3, Minimum grade C

Recommended Preparation: AUTO 80.1, AUTO 82.0

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 89.5 Electric Vehicle and Alternative Propulsion (4.0 Units)**

This is an intermediate level course on alternative fuel systems used to power Modern vehicles. Emphasis will be placed on the theory, operation, maintenance, diagnosis, and repair of EV (Electronic Vehicles) and HEV (hydrogen electric vehicles). The course will also cover the basics of install action, diagnostic procedures, laptop computers, and computer monitoring of Compressed Natural gas (CNG), and Liquid Natural Gas (LNG) Hydrogen, LPG, and Bio Fuels. Students will develop skills that interface with modern technology computer based automotive electronic and network controls. SAE and CAN network control systems. This course is designed for intermediate level technicians working in the field of stationary power engines, transportation and clean energy fuels seeking to improve skills related to the diagnosis and repair of EV, HEV, and gaseous fueled vehicles.

Prerequisite(s): AUTO 89.3, Minimum grade C

Recommended Preparation: AUTO 80.1, AUTO 80.2, or AUTO 82.0

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 89.6 Advanced Hybrid, Electric Vehicle, and Alternative Propulsion Technology (4.0 Units)**

This course explores advanced level theory, operation, diagnosis and repair of Hybrid and EV propulsion systems focusing on on-board diagnostics and HV battery diagnosis and repair in the modern automobile. This course is suitable for experienced students and technicians who intend to perform diagnosis and repair of high voltage battery and EV Battery, management systems, electric propulsion systems, and on-board computer systems.

Prerequisite(s): AUTO 89.3, AUTO 89.4, and AUTO 89.5, Minimum Grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 090 Introduction to Automotive Fabrication Ownership & Operation (0.0 Units)**

This course will provide the student with the knowledge and fundamentals of basic metal fabrication in the automotive industry. Areas of instruction includes safety, understanding measurement reading and calculations, and the proper use and application of fabrication equipment.

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 090.A Automotive Exhaust System and Fabrication (0.0 Units)**

This course is designed to provide the training needed to safely diagnose repair or legally modify the automotive exhaust system. This course and the emission courses are needed to help the student with the X1 ASE Certificate.

Prerequisite(s): AUTO 50

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 090.B Introduction to Automotive Sheet Metal Fabrication (0.0 Units)**

This course is designed to provide the student with the basic knowledge and understanding of sheet metal fabrication as it applies to the automotive and automotive accessory industry.

Lecture Hours: 36.0; Lab Hours: 108.0

Transfer: Not transferable

**AUTO 090.C Introduction to Automotive Tube Fabrication (0.0 Units)**

This course is designed to provide the student with basic knowledge and understanding of tube fabrication as it applies to the Automobile Industry.

Prerequisite(s): AUTO 50

Lecture Hours: 36.0; Lab Hours: 108.0

Transfer: Not transferable

**AUTO 90 Introduction to Automotive Fabrication (4.0 Units)**

This course will provide the student with the knowledge and fundamentals of basic metal fabrication in the automotive industry. Areas of instruction includes safety, understanding measurement reading and calculations, and the proper use and application of fabrication equipment.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 90.A Automotive Exhaust System and Fabrication (4.0 Units)**

This course is designed to provide the training needed to safely diagnose repair or legally modify the automotive exhaust system. This course and the emission courses are needed to help the student with the X1 ASE Certificate.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 54.0; Lab Hours: 54.0

Transfer: Not transferable

**AUTO 90.B Introduction to Automotive Sheet Metal Fabrication (4.0 Units)**

This course is designed to provide the student with the basic knowledge and understanding of sheet metal fabrication as it applies to the automotive and automotive accessory industry.

Prerequisite(s): AUTO 50, Minimum grade C

Lecture Hours: 36.0; Lab Hours: 108.0

Transfer: Not transferable



**AUTO 90.C Introduction to Automotive Tube Fabrication (4.0 Units)**

This course is designed to provide the student with basic knowledge and understanding of tube fabrication as it applies to the Automobile Industry  
 Prerequisite(s): AUTO 50 and WELD 58A, Minimum grade C  
 Lecture Hours: 36.0; Lab Hours: 108.0  
 Transfer: Not transferable

**AUTO 97.0 Automotive Air Conditioning and Heating Systems (4.0 Units)**

This course covers diagnosis and repair of the components of the automotive air conditioning and heating systems; evaporators, compressors, control valves, condensers, blowers, heater cores, lines and hoses. Mechanical and electronic temperature controls. Air conditioning and heating related parts will be disassembled, inspected and determination made of serviceability of existing parts. The need for replacement parts will be established as the components are reassembled. Recovery and charging of different systems will be covered from both R-12 and R134A systems.  
 Prerequisite(s): AUTO 50, Minimum grade C  
 Lecture Hours: 54.0; Lab Hours: 54.0  
 Transfer: Not transferable

**AUTO 99.1 Light Duty Diesel Systems 1 (4.0 Units)**

This course covers the theory, design, diagnosis and repair of the light duty diesel power plant systems. Topics covered will include the fuel and emission systems.  
 Prerequisite(s): AUTO 50, Minimum grade C  
 Lecture Hours: 54.0; Lab Hours: 54.0  
 Transfer: Not transferable

**AUTO 99.2 Light Duty Diesel Systems 2 (4.0 Units)**

This course covers the theory, design, diagnosis and repair of the light duty diesel power plant systems. Topics covered will include charging and starting systems, engine electronics, service and maintenance.  
 Prerequisite(s): AUTO 50, Minimum grade C  
 Lecture Hours: 54.0; Lab Hours: 54.0  
 Transfer: Not transferable

**AUTO 99.3 Light Duty Diesel Systems 3 (4.0 Units)**

This course covers the theory, design, diagnosis and repair of the light duty diesel power plant systems. Topics covered will include intake and exhaust systems, cooling and lubrication circuits and forced air induction.  
 Prerequisite(s): AUTO 50, Minimum grade C  
 Lecture Hours: 54.0; Lab Hours: 54.0  
 Transfer: Not transferable

**AUTO 99.4 Light Duty Diesel Systems 4 (4.0 Units)**

This course covers the theory, design, diagnosis and repair of the light duty diesel power plant systems. Topics covered will include cylinder block assemblies and cooling and lubrication circuits.  
 Prerequisite(s): AUTO 50, Minimum grade C  
 Lecture Hours: 54.0; Lab Hours: 54.0  
 Transfer: Not transferable

**AUTO 138 Work Experience Education Automotive (1-8 Units)**

Work Experience Education is a key element of Victor Valley College's comprehensive approach to career development. Work Experience Education is a 16-, 12-, or 8-week course that enables students to receive college credit for paid or unpaid work opportunities. This course helps students gain valuable on-the-job work experience while providing practical education, best practices in professional development, and academic guidance through the course of their work opportunity. The combination of practical experience and curricular development empowers students to be more competitive, efficient and valuable employees upon completion of this program and/or their academic program trajectory. The course is ideal for students who are cross-training at their current worksite for upward mobility or seeking career changes, as well as those looking for entry-level occupational training through work-based learning experiences such as through an internship. Work Experience Education transforms community businesses, industries, and public agencies into expanded educational training laboratories. Credit is awarded on the basis of learning objectives completed and the number of hours the student trains. Students must create/complete new learning objectives each semester they enroll. Students may utilize their present work sites. More details are available in the Work Experience Education Office, (760) 245-4271, ext. 2281. The office, located in the Academic Commons, is open Monday-Thursday, 8:00 a.m.-1:00 p.m., 2:00-6:00 p.m., and by appointment. Please refer to the Work Experience Education section in this catalog for more information.  
 CSU  
 Transfer: Transfers to CSU only

## Program Learning Outcomes

Program Learning Outcomes (PLOs) are statements of the kind of learning a program hopes a student will achieve. The PLOs describe the knowledge, skills, problem-solving, communication and values that apply to all certificates and/or degrees within that program.

Upon completion of this program, students should be able to:

1. Perform automotive repairs to a professional level that ensures compliance with industry standards for vehicle safety and function while maintaining a workplace that meets local, state and federal safety and environmental regulations and complies with state regulatory agency standards for professionalism and ethics.
2. Recognize the procedures to perform automotive repairs while minimizing impact on the environment.
3. Determine necessary procedures to bring the ignition, fuel, and computer system into industry compliance for dependable vehicle operation.