

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

Lee Bennett | Dan Rowland | Keith Shaner

Degrees and Certificates Awarded

Associate in Science, Automotive Technology

Automotive Detailer/Porter Certificate

Automotive Inspection and Maintenance Technician Certificate

Automotive Specialist I Certificate

Automotive Technician Certificate

Automotive Brake and Suspension Specialist Certificate

Automotive Drivability Specialist Certificate

Automotive Repair Shop Manager Certificate

Automotive Specialist II Certificate

Automotive Transmission Specialist Certificate

Program Learning Outcomes

A student receiving a degree or certificate in this field will be able to:

- Properly perform automotive repairs following industry standards for safety, comfort, and driveability.
- Safely and responsibly perform automotive repairs while minimizing negative impact on the environment.

Associate Degree

To earn an Associate in Science degree with a major in Automotive Technology (04946), complete a minimum of 18 units from any of the certificates or from any Automotive Technology courses and meet all Victor Valley College graduation requirements. AUTO 138 (Cooperative Education) may be used as Elective credit, but may not be used to fulfill major requirements.

Transfer

Not a transfer major.

Automotive Technology

AUTOMOTIVE BRAKE AND SUSPENSION SPECIALIST CERTIFICATE

Units Required: 8.0	<i>All of the following must be completed with a grade of "C" or better:</i>	
AUTO 60	Automotive Suspension and Alignment	4.0
AUTO 61	Automotive Brakes	4.0

AUTOMOTIVE DETAILER/PORTER CERTIFICATE

Units Required: 6.0	<i>All of the following must be completed with a grade of "C" or better:</i>	
<i>These classes should be taken in the following order.</i>		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 62	Automotive Detailing	2.0

AUTOMOTIVE DRIVEABILITY SPECIALIST CERTIFICATE

Units Required: 8.0	<i>All of the following must be completed with a grade of "C" or better:</i>	
<i>These classes should be taken in the following order.</i>		
AUTO 79B	Ignition and Fuel Systems	4.0
AUTO 80A	Automotive Computers, Electronics, and Electrical Systems	4.0

AUTOMOTIVE INSPECTION AND MAINTENANCE TECHNICIAN CERTIFICATE

Units Required: 6.0	<i>All of the following must be completed with a grade of "C" or better:</i>	
<i>These classes should be taken in the following order.</i>		
AUTO 79A	Basic Tune Up	2.0
AUTO 58	Automotive Lubrication Technician	2.0
AUTO 59	Automotive Tire Technician	2.0

AUTOMOTIVE REPAIR SHOP MANAGER CERTIFICATE

Units Required: 16.0	<i>All of the following must be completed with a grade of "C" or better:</i>	
<i>These classes should be taken in the following order.</i>		
AUTO 50	Introduction to Automotive Technology	4.0
AUTO 77.0	Automotive Service Writer and Shop Management or concurrently with AUTO 50	3.0
AUTO 77L	Automotive Service Writer and Shop Management Lab	2.0
AUTO 77.1	Automotive Leadership and Team Building	3.0
AUTO 77.2	Automotive Safety Training For Managers	3.0
BET 101	Beginning Keyboarding/Typing can be taken anytime during the program or BET 104A or B or C	1.0

AUTOMOTIVE SPECIALIST I CERTIFICATE (ENGINE REPAIR, DRIVE TRAIN, CHASSIS)

The certificate program in Engine Repair, Drive Train and Chassis will enable the student to obtain employment in any entry-level position in those related fields.

Units Required: 24.0	<i>All of the following must be completed with a grade of "C" or better:</i>	
<i>These classes should be taken in the following order.</i>		
AUTO 51	Automotive Engines and Drive Trains	12.0
AUTO 57	Automotive Brakes, Suspension and Wheel Alignment	12.0

Automotive Technology

AUTOMOTIVE SPECIALIST II CERTIFICATE

(ENGINE PERFORMANCE, ELECTRONICS [AUTO] POLLUTION CONTROL)

The certificate program in Engine Performance, Electronics [Auto], and Pollution Control will enable the student to obtain employment in any entry-level position in those related fields.

Units Required: 24.0

All of the following must be completed with a grade of "C" or better:

These classes should be taken in the following order.

AUTO 79	Tune-up, Pollution Control, and Fuel Systems	12.0
AUTO 80	Automotive Computers, Electronics, and Electrical Systems	12.0

AUTOMOTIVE TECHNICIAN CERTIFICATE

(ENGINE PERFORMANCE, ENGINE REPAIR, ELECTRONICS [AUTO], DRIVE TRAIN, POLLUTION CONTROL, CHASSIS)

This certificate is obtained upon successful completion of Automotive Specialist I and II and provides the student excellent entry-level skills in a wide range of automotive repair fields.

Units Required: 48.0

All of the following must be completed with a grade of "C" or better:

(Successful completion of Specialist I and II) These classes should be taken in the following order.

AUTO 51	Automotive Engines and Drive Trains	12.0
AUTO 57	Automotive Brakes, Suspension and Wheel Alignment	12.0
AUTO 79	Tune-up, Pollution Control, and Fuel Systems	12.0
AUTO 80	Automotive Computers, Electronics, and Electrical Systems	12.0

AUTOMOTIVE TRANSMISSION SPECIALIST CERTIFICATE

Units Required: 12.0

All of the following must be completed with a grade of "C" or better:

These classes should be taken in the following order.

AUTO 55	Standard Transmission Overhaul	5.0
AUTO 56A	Electronic Computer Transmission Controls	2.0
AUTO 56	Automatic Transmission Overhaul	5.0

SMOG INSPECTION TECHNICIAN CERTIFICATE

Units Required: 11.0

All of the following must be completed with a grade of "C" or better:

AUTO 85-D	Emission Diagnostic and Repair Training	3.0
AUTO 85.6	Emission Control Training	4.0
AUTO 85.5	Engine Emission Control Training	4.0

AUTO 50 INTRODUCTION TO AUTOMOTIVE TECHNOLOGY

Units: 4.0 | **48-54 hours lecture and 48-54 hours laboratory**

(No prerequisites)

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.

AUTO 50.5 INTRODUCTION TO BASIC AUTOMOTIVE SERVICE AND MAINTENANCE

Units: 4.0 | **64-72 hours lecture**

(No prerequisite)

This course covers the basic functions of all the automotive systems as well as key parts of the entire automotive industry. Topics covered will include minor preventive maintenance procedures.

AUTO 51 AUTOMOTIVE ENGINES AND DRIVE TRAINS

Units: 12.0 | **128-144 hours lecture and 192-216 hours laboratory**

(No prerequisite)

This course covers techniques used by the Automotive Industry to diagnose and repair engine and drive train malfunctions, cylinder head, cylinder block, and drive train systems. Instruction will cover the diagnosis and repair of engine and drive train systems, cylinder heads, cylinder blocks, rotating assemblies, and basic drive train as they apply to the automobile.

AUTO 51A ENGINE REPAIR

Units: 4-6.0 | **48-54 hours lecture and 48-54 hours per unit of laboratory**

(No prerequisite)

This course provides the student with the knowledge necessary to diagnose and repair engines. Information covered will include diagnosis and repair of cylinder head and valve train, engine block, lubrication, cooling systems and general engine assembly.

AUTO 55.0 AUTOMOTIVE STANDARD TRANSMISSION AND DIFFERENTIAL OVERHAUL

Units: 4 - 5.0 | **48-54 hours lecture and 48-54 hours laboratory**

(Prerequisite: AUTO 50 with a grade of "C" or better.)

This course covers diagnosis and repair of the components of standard transmission systems, and differential systems, gears, synchronizers, bearings, clutches, and electronic controls. Standard trans-missions 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.

AUTO 56.0 AUTOMATIC TRANSMISSION OVERHAUL

Units: 4 - 5.0 | **48-54 hours lecture and 48-54 hours laboratory**

(Prerequisite: AUTO 50 with a grade of "C" or better.)

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.

AUTO 56A TRANSMISSION COMPUTER SYSTEMS

Units: 2.0 | **24-27 hours of lecture and 24-27 hours laboratory.**

(No prerequisite)

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.

Automotive Courses

AUTO 57.0 AUTOMOTIVE BRAKES, SUSPENSION, AND WHEEL ALIGNMENT

Units: 12.0

128-144 hours lecture and 192-216 hours laboratory

(No prerequisite)

This course covers diagnosis and repair and maintenance of the brake and suspension systems; including drum and disc brakes, brake hydraulics, power assist units, front and rear suspension systems, shocks and struts, steering linkages and power steering systems. All aspects of alignments will be covered including two and four wheel and struts on different alignment apparatuses. Maintenance of all parts of the brake and suspension systems will be covered.

AUTO 57.1 AUTOMOTIVE BRAKES, THEORY AND FUNCTION

Units: 3.0

48-54 hours lecture

(No prerequisite)

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

AUTO 58 AUTOMOTIVE LUBRICATION TECHNICIAN

Units: 2.0

24-27 hours lecture and 24-27 hours laboratory

(No prerequisite)

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.

AUTO 59.0 AUTOMOTIVE TIRE TECHNICIAN

Units: 2.0

24-27 hours lecture and 24-27 hours laboratory

(No prerequisite)

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.

AUTO 60 AUTOMOTIVE SUSPENSION AND ALIGNMENT

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

This course covers diagnosis and repair of the components of 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.

AUTO 61.0 AUTOMOTIVE BRAKES

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite. Recommended preparation: AUTO 57.0.)

This course covers diagnosis and repair of the components of automotive brake systems: basic hydraulics, drum brakes, disc brakes, turning drums 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.

AUTO 62 AUTOMOTIVE DETAILING

Units: 2.0

16-18 hours lecture and 48-54 hours laboratory

(No prerequisite)

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.

AUTO 77 AUTOMOTIVE SERVICE WRITING AND SHOP MANAGEMENT

Units: 3.0 | **48-54 hours lecture**

(No prerequisite)

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.

AUTO 77.1 AUTOMOTIVE LEADERSHIP AND TEAM BUILDING

Units: 3.0 | **48-54 hours lecture**

(No prerequisite)

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

AUTO 77.2 AUTOMOTIVE SAFETY TRAINING FOR MANAGERS

Units: 3.0 | **48-54 hours lecture**

(No prerequisite)

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.

AUTO 77.3 AUTOMOTIVE WORKPLACE PROFESSIONALISM

Units: 2.0 | **32-36 hours lecture**

(No prerequisite)

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.

AUTO 77L AUTOMOTIVE SERVICE WRITING AND SHOP MANAGER LABORATORY

Units: 2.0 | **96-108 hours laboratory**

(No prerequisite)

This course prepares students to effectively write automotive service orders and manage an automotive repair shop. Topics covered 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.

AUTO 79.0 AUTOMOTIVE TUNE-UP, EMISSION CONTROL, AND FUEL SYSTEM

Units: 12.0 | **128-144 hours lecture and 192-216 hours laboratory**

(Prerequisite: AUTO 50 with a grade of "C" or better.)

This course covers techniques used by the automotive industry to diagnose and repair ignition systems, fuel systems, and emission control systems. Instruction will cover the diagnosis and repair of conventional and electronic ignition systems, conventional and feedback carburetors, fuel injection, and emission control devices.

AUTO 79A BASIC TUNE-UP

Units: 2.0 | **24-27 hours lecture and 24-27 hours laboratory**

(No prerequisite)

This course covers techniques used by the Automotive Industry to diagnose and repair fuel and ignition systems. Topics will cover the diagnosis and repair of conventional and electronic ignition systems, fuel systems, and introduction to automotive computers.

Automotive Courses

AUTO 79B TROUBLE SHOOTING AND REPAIR OF IGNITION AND FUEL SYSTEMS

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

This course covers techniques used by the automotive industry to diagnose and repair ignition systems and fuel systems. Topics covered included the diagnosis and repair of conventional and electronic ignition systems, conventional and feedback carburetors, along with emission control devices.

AUTO 80.0 AUTOMOTIVE COMPUTERS, ELECTRONICS AND ELECTRICAL SYSTEMS

Units: 12.0

128-144 hours lecture and 192-216 hours laboratory

(Prerequisite: AUTO 50 with a grade of "C" or better.)

This course covers techniques used by the automotive industry to diagnose and repair electrical malfunctions, computer, fuel injection, and electronic ignition systems. Instruction will cover the diagnosis and repair of electronic ignition systems, alternators, starters, computers, and basic electrical and electronic concepts as they apply to the automobile.

AUTO 80.6 INTRODUCTION TO AUTOMOTIVE ELECTRICITY

Units: 4.0

64-72 hours lecture

(No prerequisite)

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.

AUTO 80A AUTOMOTIVE COMPUTERS, ELECTRONICS, AND ELECTRICAL SYSTEMS

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

This course covers techniques used by the automotive industry to diagnose and repair computer and fuel injection systems. Topics covered include the diagnosis and repair of electronic ignition systems, alternators and starters. Basic electrical and electronic concepts as they apply to the automobile.

AUTO 80F FORD DIAGNOSTIC AND REPAIR STRATEGIES

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

This course covers late-model Ford vehicles. Current factory procedures will be introduced to diagnose and repair OBD-2 computer and emission systems.

AUTO 82.0 AUTOMOTIVE ELECTRICAL REPAIR

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

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.

AUTO 85.1 INTRODUCTION TO ENGINE PERFORMANCE THEORY

Units: 4.0

64-72 hours lecture

(No prerequisite)

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

AUTO 85.5 ENGINE AND EMISSION CONTROL TRAINING

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

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 Bureau of Automotive Repair (BAR) requirements for level one training.

AUTO 85.6 EMISSION CONTROL TRAINING

Units: 4.0 | 48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

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

AUTO 85D BAR SPECIFIED DIAGNOSTIC AND REPAIR TRAINING

Units: 4.0 | 48-54 hours lecture. and 48-54 hours laboratory

(No prerequisite)

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.

AUTO 89.1 INTRODUCTION TO HYBRID VEHICLE TECHNOLOGY

Units: 4.0 | 48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

This course introduces hybrid vehicle technology. Topics covered will include electrical basics, batteries, types of hybrid vehicles, and preventive maintenance procedures.

AUTO 89.2 HYBRID VEHICLE MAINTENANCE AND SERVICE

Units: 4.0 | 48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

This course addresses hybrid vehicle maintenance and service procedures. Topics covered will include safety, manufacture specific hybrids, diagnostic and repair procedures as they relate to hybrid vehicles.

AUTO 95A AUTOMOTIVE LABORATORY

Units: 1.0 | 48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

A laboratory class to develop skills in engine repair, tune up, emissions, electrical, suspension, brakes, and general maintenance procedures.

AUTO 95B AUTOMOTIVE LABORATORY

Units: 2.0 | 96-108 hours laboratory

(No prerequisite)

This laboratory course covers the skills needed by the automotive industry to diagnose and repair ignition, emission and fuel systems.

AUTO 96.0 APPLIED TECHNICAL MATHEMATICS AND MEASURING INSTRUMENTATION

Units: 3.0 | 48-54 hours lecture

(No prerequisite)

This course provides trades people with applied foundation math skills necessary to perform required shop tasks. This course includes a review of basic mathematic operations, U.S. and Metric weights and measure, area and volume, fractions and decimals as applied to functional applications. Also discussed will be the theory, application and usage of precision measuring devices.

Automotive Courses

AUTO 97.0 AUTOMOTIVE AIR CONDITIONING AND HEATING SYSTEMS

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

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 the serviceability of existing parts. The need for re-placement parts will be established as the components are reassembled. Recovery and charging of different systems will be covered from both R-12 and R-134A systems.

AUTO 99.1 LIGHT DUTY DIESEL SYSTEMS 1

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

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.

AUTO 99.2 LIGHT DUTY DIESEL SYSTEMS 2

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

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.

AUTO 99.3 LIGHT DUTY DIESEL SYSTEMS 3

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

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.

AUTO 99.4 LIGHT DUTY DIESEL SYSTEMS 4

Units: 4.0

48-54 hours lecture and 48-54 hours laboratory

(No prerequisite)

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.

AUTO 138 COOPERATIVE EDUCATION

See Cooperative Education listing (1-8 units). [CSU](#)