AB R005B—Auto Body Painting and Refinishing II
4 units
Prerequisites: AB R005A.
2 hours lecture, 6 hours lab weekly
This course continues training in automotive painting and refinishing. Topics to be covered include application of undercoats and topcoats, spot repair procedures, paint job procedures, paint problems, and procedures for securing employment in the field. Field trips may be required. Course is offered Pass/No Pass (P/NP) at student’s option.

AB R007A—Automotive Graphics
2 units
Prerequisites: AB R007A.
1 hour lecture, 3 hours lab weekly
This is an introductory course that gives a comprehensive overview of automotive graphics including preparation and layout of pinstriping, touch-up, lettering, and murals. This course also includes graphics for commercial trucks and boats. Field trips may be required. Course is offered Pass/No Pass (P/NP) at student’s option.

AB R007B—Advanced Automotive Graphics
2 units
Prerequisites: AB R007A.
1 hour lecture, 3 hours lab weekly
This course provides instruction in advanced level automotive graphics design including color selection, paint mixing, customized murals, advanced commercial lettering applications, advanced outlines and shadowing, advanced pinstriping, and customized quiles. Field trips may be required. Course is offered Pass/No Pass (P/NP) at student’s option.

AUTOMOTIVE TECHNOLOGY

The Automotive Technology program at Oxnard College is designed to prepare students as entry-level technicians for the automotive field. The program provides improvement training for working automotive technicians dealing with rapidly changing technologies. Students can complete an Associate of Science Degree or Certificate of Achievement. Courses include a full range of curriculum for this career: fundamentals of automotive, automotive electrical, engine performance, brake systems, steering and suspension, heating and air conditioning systems, and transmissions. The courses are designed to give a student knowledge and hands-on training needed to achieve ASE (Automotive Service Excellence) certification. All courses are taught by ASE certified instructors and the program is certified by NATEF (National Automotive Technicians Educational Foundation).

For more information, contact:
Richard Williams, rwilliams@vcccd.edu
(805) 986-5890

CAREER OPPORTUNITIES

Automotive Electrical Repair Specialist
Brake and Wheel Alignment Technician
Engine Performance Specialist
Licensed Smog Technician

FACULTY

Full-Time
Richard Williams

Part-Time
Jeff Hiben
Norman Roth

AUTOMOTIVE TECHNOLOGY

Associate in Science Degree
Certificate of Achievement

REQUIRED COURSES:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AT R010</td>
<td>Fundamentals of Auto Technology</td>
</tr>
<tr>
<td>AT R012</td>
<td>Automotive Air Conditioning</td>
</tr>
<tr>
<td>AT R013</td>
<td>Automotive Engine Performance</td>
</tr>
<tr>
<td>AT R013L</td>
<td>Automotive Engine Performance Lab</td>
</tr>
<tr>
<td>AT R015</td>
<td>Automotive Electrical Systems</td>
</tr>
<tr>
<td>AT R015L</td>
<td>Automotive Electrical Systems Lab</td>
</tr>
<tr>
<td>AT R016</td>
<td>Auto Electronics</td>
</tr>
<tr>
<td>AT R018</td>
<td>Automotive Brake Systems</td>
</tr>
<tr>
<td>AT R018L</td>
<td>Automotive Brake Systems Lab</td>
</tr>
<tr>
<td>AT R033</td>
<td>Automotive Emission and Fuel Control Systems</td>
</tr>
<tr>
<td>AT R050</td>
<td>Automotive Steering and Suspension</td>
</tr>
</tbody>
</table>

TOTAL CORE REQUIREMENTS: 36 units

REQUIRED ADDITIONAL COURSES:

Complete a minimum of five units from the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT R014</td>
<td>Advanced Engine Performance</td>
</tr>
<tr>
<td>AT R014L</td>
<td>Advanced Engine Performance Lab</td>
</tr>
<tr>
<td>AT R026</td>
<td>Automotive Engine Overhaul</td>
</tr>
<tr>
<td>AT R026L</td>
<td>Automotive Engine Overhaul Lab</td>
</tr>
<tr>
<td>AT R030</td>
<td>Automotive Transmissions and Drive Line</td>
</tr>
<tr>
<td>AT R030L</td>
<td>Automotive Transmissions and Drive Line Lab</td>
</tr>
<tr>
<td>AT R045</td>
<td>Enhanced Clean Air Car Course State of California</td>
</tr>
</tbody>
</table>

TOTAL REQUIRED UNITS: 41-42 units

To complete the Certificate of Achievement, students must also meet requirements in scholarship and residency. Refer to Education Pathways - Earn a Certificate of Achievement section in this catalog for specific information.

To complete the Associate Degree, students must also meet requirements in general education, competency, units, scholarship, and residency. Refer to Education Pathways - Earn an Associate Degree and the A.A. or A.S. Degree in Specific Majors sections of this catalog.

PROGRAM STUDENT LEARNING OUTCOMES

Upon successful completion of the Automotive Technology program students will be able to:

- Identify and comprehend environmental safety rules and regulations, in the following areas. Shop safety, personal safety, hazardous material safety, air bag safety, power tool and, typical equipment safety.
- Comprehend simple graphing concepts and common fractions & their decimal equivalents as they apply to automotive diagnosis and repair.
- Complete industry standard documents and related paperwork.
- Improve in their ability to identify, retrieve, comprehend and apply basic automotive technical information including but not limited to online information.
**COURSE DESCRIPTIONS**

**AT R010—Fundamentals of Auto Technology**  
3 units  
3 hours lecture weekly  
This course is a comprehensive overview of the automobile, basic operation principles and repair procedures. Systems included are ignition, charging, cranking, cooling, fuel, lubrication, brakes, engine operation and front suspension. Field trips may be required.

**AT R012—Automotive Air Conditioning**  
2 units  
1 hour lecture, 3 hours lab weekly  
This course provides a comprehensive study of the principles of operation and theory of automotive air conditioning. This course offers a study of design features of each manufacturer to include servicing, troubleshooting, diagnosis and system repair. Students will be given practical skills for servicing, repair and diagnosis. Field trips may be required.

**AT R013—Automotive Engine Performance**  
4 units  
4 hours lecture weekly  
This course provides detailed coverage of automotive ignition systems and fuel injection systems. This course will focus on engine computer management, and the skills required for diagnosing, servicing and repairing these systems. Preparation for the ASE certification test in engine performance is included. Field trips may be required.

**AT R013L—Automotive Engine Performance Lab**  
2 units  
1 hour lecture, 3 hours lab weekly  
This course provides vocational preparation with the skills required in the diagnosing, servicing and repairing automotive ignition, fuel injection and engine computer management systems. The student will practice the skills required for diagnosing, servicing and repairing these systems. The student will use engine computer scan tools and lab scopes for testing purposes. Preparation for the ASE certification test in engine performance is included. Field trips may be required.

**AT R014—Advanced Engine Performance**  
4 units  
4 hours lecture weekly  
This advanced course provides technical preparation in the skills required to diagnose engine control management systems of modern vehicles. The L-1 certification by ASE requires the most current knowledge and preparation in the series of tests offered by ASE for automobiles. Students will use manufacturer approved scan tools, lab scopes, digital volt meters and other state-of-the-art test equipment. Systems covered will include the engine management computer control system, and how other computer control systems (such as the anti-lock brake and supplemental restraint computer systems) interact. Preparation for the ASE L-1 certification in advanced engine performance will be included. Field trips may be required.

**AT R014L—Advanced Engine Performance Lab**  
2 units  
Prerequisites: AT R013.  
Corequisites: AT R014.  
1 hour lecture, 3 hours lab weekly  
This advanced course provides hands on technical preparation in the skills required to diagnose engine control management systems of modern vehicles. The L-1 certification by ASE requires the most current knowledge and preparation in the series of tests offered by ASE for automobiles. Students will use manufacturer approved scan tools, lab scopes, digital volt meters and other state-of-the-art test equipment. Systems covered will include the engine management computer control system, and how other computer control systems (such as the anti-lock brake and supplemental restraint computer systems) interact. Preparation for the ASE L-1 certification in advanced engine performance will be included. Field trips may be required.

**AT R015—Automotive Electrical Systems**  
4 units  
3 hours lecture weekly  
Advisory: AT R010.  
Corequisites: AT R015L.  
4 hours lecture weekly  
This course covers all aspects of automotive electrical systems including charging, starting, ignition, accessories, and electronics. This course will cover wiring diagrams and provide skills necessary to diagnose electrical problems in computer controls on vehicles. Preparation for ASE certification test included. Field trips may be required.

**AT R015L—Automotive Electrical Systems Lab**  
2 units  
Prerequisites: AT R015.  
Corequisites: AT R010.  
1 hour lecture, 3 hours lab weekly  
This course provides vocational preparation in the skills required in diagnosis, adjustment, repair and maintenance of the electrical systems of modern automotive vehicles. The course is based on electrical service procedures for the overhaul of electrical components and circuitry in automobiles. Preparation for the ASE certification electrical and electronics A-6 test is included. Field trips may be required.

**AT R016—Auto Electronics**  
3 units  
3 hours lecture weekly  
Advisory: AT R010 and AT R013.  
Corequisites: AT R016L.  
1 hour lecture, 3 hours lab weekly  
This course is designed for advanced students or technicians in the auto service industry. This course covers various types of electronic systems, ignition systems, computer management, and fuel injection control systems. Scan tool devices used in diagnosis of today’s modern vehicles will be covered. Field trips may be required.

**AT R018—Automotive Brake Systems**  
4 units  
4 hours lecture weekly  
Advisory: AT R010.  
Corequisites: AT R018L.  
1 hour lecture, 3 hours lab weekly  
This course begins with the study of automotive brake systems, including hydraulic and friction principles. This course will study drum and disc brake systems showing how the systems function. The course will cover computerized anti-lock brake controls giving students skills in diagnosis and repair with these systems. Preparation for the ASE certification test included. Field trips may be required.

**AT R018L—Automotive Brake Systems Lab**  
2 units  
Prerequisites: AT R018.  
Corequisites: AT R018L.  
1 hour lecture, 3 hours lab weekly  
This course covers automotive brake systems service procedures including: hydraulic system overhaul, drum and disc rotor machining, brake shoe and pad service. The anti-lock brake computer system will be tested and serviced with industry accepted practices. Scan tools will be used to test anti-lock brake systems. This “hands-on” course will allow the student to practice skills taught in the brake class. Preparation for the ASE certification test is included. Field trips may be required.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT R020</td>
<td>ASE Mechanics Certification</td>
<td>3</td>
<td>Advisory: Employment in the automotive industry or an automotive major. 3 hours lecture weekly. This course is offered to assist employed mechanics and students with automotive mechanic majors in preparing for the ASE (Automotive Service Excellence) certification examinations. This course will cover nine specific test areas: engine repair, electrical/electronic systems, heating and air conditioning, brakes, suspension and steering, automatic transmission/transaxle, manual drive train and axles, engine performance, and advanced engine performance specialist. Field trips may be required.</td>
</tr>
<tr>
<td>AT R026</td>
<td>Automotive Engine Overhaul</td>
<td>4</td>
<td>Advisory: AT R010. Corequisites: AT R026L. 4 hours lecture weekly. This course provides technical preparation in the basic skills required to diagnose, adjust, repair, and overhaul the automotive internal combustion engine. All phases of machine work will be covered. Quality inspection and reassembly procedures will be stressed. Preparation for the ASE certification test is included. Field trips may be required.</td>
</tr>
<tr>
<td>AT R026L</td>
<td>Automotive Engine Overhaul Lab</td>
<td>2</td>
<td>Advisory: AT R010. Corequisites: AT R026. 1 hour lecture, 3 hours lab weekly. Course uses class projects involving theory and operation of modern engine overhaul equipment. Students will gain experience and skills diagnosing repairs, cleaning, disassembling, repairing, and restoring engines to service. Preparation for the ASE certification test is included. Field trips may be required.</td>
</tr>
<tr>
<td>AT R030</td>
<td>Automotive Transmission and Drive Line</td>
<td>3</td>
<td>Advisory: AT R010. Corequisite: AT R030L. 3 hours lecture weekly. This course provides technical preparation in the basic skills required to diagnose, adjust, repair, and overhaul the automotive transmission and drive line. All phases of transmission diagnosis and repair work will be covered. Quality inspection and reassembly procedures will be stressed. Preparation for the ASE certification is included. Field trips may be required.</td>
</tr>
<tr>
<td>AT R030L</td>
<td>Automotive Transmission and Drive Line Lab</td>
<td>2</td>
<td>Advisory: AT R010. Corequisite: AT R030. 6 hours lab weekly. This course provides technical preparation in the skills required to diagnose, adjust, repair and overhaul the automotive transmission. All phases of transmission testing will be covered. Quality inspection and reassembly procedures will be stressed. Students will gain experience and skills diagnosing repairs, cleaning, disassembling, repairing, and restoring transmissions to service. Preparation for the ASE certification test is included. Field trips may be required.</td>
</tr>
<tr>
<td>AT R033</td>
<td>Automotive Emission and Fuel Control Systems</td>
<td>4</td>
<td>Advisory: AT R010. 3 hours lecture, 3 hours lab weekly. This course covers a brief history of air pollution, automotive emissions control laws, and control systems. The basic emission controls such as positive crankcase ventilation, air injection, evaporative controls, catalytic converters, and computer control systems will be covered in depth. Emission testing equipment approved by the State of California will be used on vehicles. Students will study emission failing vehicles and principles of diagnosis to correct excessively polluting vehicles. Fuel injection systems will be studied and tested. Preparation for the ASE (Automotive Service Excellence) certification test is included. Field trips may be required.</td>
</tr>
<tr>
<td>AT R045</td>
<td>Enhanced Clean Air Car Course, State of California</td>
<td>5</td>
<td>Advisory: AT R013 and AT R015 or student must be an automotive major or have at least two years of automotive experience. 4 hours lecture, 3 hours lab weekly. This course is for automotive technology majors or employed auto technicians who are preparing to take the Bureau of Automotive Repair, State of California (BAR) Enhanced Clean Air Car Course Exam. This course covers automotive fuel systems, electrical systems, computer control systems, emission controls, and inspection procedures. This course will follow the state mandated lesson outline. The laws and regulations related to automotive repair in California will be covered in this course. Official vehicle inspection procedures will be taught in this course. Field trips may be required. Formerly AT R021.</td>
</tr>
<tr>
<td>AT R050</td>
<td>Automotive Steering and Suspension</td>
<td>6</td>
<td>Advisory: AT R010. 5 hours lecture, 3 hours lab weekly. This course is for the automotive student, who wants to understand automotive steering and suspension systems. This course provides the technical skills and preparation required in diagnosis, adjustment, replacement and repair of all types of suspension systems commonly used in the automotive industry. Factory type scan tools will be used for interaction with the vehicle steering and suspension control systems. Skills used for diagnosing body computer systems will be taught as part of the course. Preparation for the ASE certification exam is included. Field trips may be required.</td>
</tr>
<tr>
<td>AT R088</td>
<td>California Bureau of Automotive Repair Smog License Update Class</td>
<td>1</td>
<td>Advisory: This course is for persons holding a current State of California Smog Inspection License and candidates for the Smog Inspection License. ½ hour lecture, ¾ hour lab weekly. This short course will cover selected areas of automotive technology. This course will meet the smog license update training requirements of the State of California, Bureau of Automotive Repair. Field trips may be required. Course is offered on a Pass/No Pass (P/NP) basis only.</td>
</tr>
<tr>
<td>AT R098</td>
<td>Short Courses in Automotive Mechanics</td>
<td>½-10</td>
<td>Lecture and/or lab hours as required by unit formula. Specialized topics designed to inform or update interested persons in various disciplines within the auto repair industry. Length of course determines unit credit.</td>
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</table>