Automotive Body and Repair

Program Description
This program is designed to prepare the student for employment as a body repair and paint apprentice in privately owned repair shops or automotive dealerships. A student could be self-employed from the training after completing the program.

Certificate of Achievement and Associate Degree in Science
A Certificate of Achievement can be obtained by completing the 46-unit major below. The Associate in Science Degree can be obtained by completing 67 units, including the major and the general education requirements. All courses in the major must be completed with a grade of C or better or a P if the course is taken on a Pass/No Pass basis.

Program Outcomes
Students who complete the Certificate of Achievement/Associate Degree will be able to:
1. Demonstrate knowledge of metal joining and straightening methods.
2. Inspect, remove, install, align panels, doors and trim to meet shop standards
3. Determine type of paint; plan refinishing system; remove, prepare, seal and mask; apply coatings to vehicle.
4. Demonstrate correct use of chemicals within the shop environment.
5. Work safely and responsibly within all safety and environmental guideline standards for a shop.
6. Identify and strategize career plans for employment in the auto collision field.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTB 100 Fundamentals of Auto Body Repair</td>
<td>10</td>
</tr>
<tr>
<td>AUTB 101 Spray Paint Theory and Techniques</td>
<td>10</td>
</tr>
<tr>
<td>AUTB 102 Automotive Body Panels and Frame Straightening</td>
<td>10</td>
</tr>
<tr>
<td>AUTB 103 Advanced Auto Body Repair and Painting</td>
<td>10</td>
</tr>
<tr>
<td>IT 140 Industrial Materials</td>
<td>3</td>
</tr>
<tr>
<td>IT 150 Industrial Processes</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Units</strong></td>
<td><strong>46</strong></td>
</tr>
</tbody>
</table>

Recommended Electives

- BUS 005 Introduction to Business
- DRFT 079 Blueprint Reading
- IT 110 Modern Welding
- OCED 090 Occupational Work Experience
- OCED 091 General Work Experience

Some courses may not be offered. Please contact the Dean of Career and Technical Education for alternate courses if necessary.
Automotive

Automotive Technician

Program Description
This program is designed to prepare graduates for employment in the automotive industry as apprentice mechanics, parts people, service station attendants or specialists in one of the many areas in, or jobs related to, the automotive industry.

Certificate of Achievement and Associate of Science Degree
A Certificate of Achievement can be obtained by completing the 40-unit major below. The Associate in Science Degree can be obtained upon completion of 61 units, including the major, and the general education requirements. All courses in the major must be completed with a grade of C or better or a P if the course is taken on a Pass/No Pass basis.

Program Outcomes
Students who complete the Certificate of Achievement/Associate Degree will be technically proficient in entry level skills as defined by the National Automotive Technicians Education Foundation (NATEF) by demonstrating:

1. 85 percent of the tasks established by NATEF.
2. Proper service and repair procedures of the following systems:
   - Engine Repair
   - Automatic Transaxles/Transmissions
   - Manual Drivetrain
   - Suspension, Steering and Alignment
   - Brakes
   - Electrical Systems
   - Heating and Air Conditioning
   - Engine Performance
3. Proper safety procedures and techniques.
4. Efficient oral and written communication.
5. The ability to apply fundamental automotive technology principles.

**REQUIRED COURSES**  
<table>
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<tr>
<td>ATEC 130 Automotive Systems</td>
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<tr>
<td>ATEC 131 Automotive Electrical Systems</td>
<td>10</td>
</tr>
<tr>
<td>ATEC 132 Automotive Brakes and Suspension Systems</td>
<td>10</td>
</tr>
<tr>
<td>ATEC 133 Internal Combustion Engines</td>
<td>10</td>
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**Total Units**  

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</table>
Automotive Fundamentals
Course Advisory: SCC minimum English and Math standards. This course serves as the pre-requisite for all automotive technology certificate and/or degree applicable courses and provides the knowledge and skills needed to prepare students for entry into the automotive core curriculum. The study of automotive industry fundamentals including careers; safety; fasteners; hand tool identification and usage; vehicle systems; electrical fundamentals; service information access and use; automotive chemical and fluid applications; hazardous waste handling; general shop equipment usage, and vehicle servicing. The course is designed in conjunction with Automotive Service Excellence (ASE) standards and subsequently will in part prepare the student for the ASE Maintenance and Light Repair G1 Certification Examination. Two hours lecture, three hours lab.

ATEC 130 4.0 Units
Automotive Systems
Prerequisite: ATEC 070 with a minimum grade of C (may be taken concurrently). Course Advisory: ATEC 131 Automotive Electrical Systems, and SCC minimum English and Math standard. The study of automotive suspension and steering fundamentals including: Diagnosis, inspection, repair, and adjustment of modern automotive steering, suspension, supplemental restraint, tire pressure monitoring, and alignment systems. Theory of operation, common automotive steering and suspension systems, wheel alignment principles, methods of diagnosis, adjustment and repair, and the use of suspension service equipment will be covered. Prerequisite: ATEC070 (may be taken concurrently) or equivalent. The course is designed in conjunction with Automotive Service Excellence (ASE) standards and subsequently will in part prepare the student for the ASE Electrical / Electronic A6 Certification Examination. Two hours lecture, six hours lab.

ATEC 132 4.0 Units
Automotive Brakes and Suspension Systems
Prerequisite: ATEC 070 with a minimum grade of C (may be taken concurrently). Course Advisory: ATEC 131 Automotive Electrical Systems, and SCC minimum English and Math standard. The study of modern automotive braking systems. Hydraulic principles, coefficients of friction, and thermodynamics will be discussed. Diagnosis, repair, overhaul, and adjustment procedures of drum, disc/drum, and four-wheel disc systems will be emphasized. Anti-lock Braking Systems (ABS) diagnostics, servicing, and repair procedures will also be covered. The course will cover common domestic and import passenger vehicles, and light trucks only. Prerequisite: ATEC070 or equivalent (may be taken concurrently). The course is designed in conjunction with Automotive Service Excellence (ASE) standards and subsequently will prepare the student for the ASE Brakes A5 Certification Examination. Two hours lecture, six hours lab.
Automotive

ATEC 133 4.0 Units
Internal Combustion Engines and Power Transmission
Prerequisite: ATEC 070 with a minimum grade of C (may be taken concurrently). Course Advisory: ATEC 131 Automotive Electrical Systems, and SCC minimum English and Math standard. The study of four stroke combustion cycle theory, engine torque, horsepower, materials, and manufacturing processes as they relate to internal combustion powerplants used in production automobiles and light trucks. The theory, principles, and diagnosis of cooling systems, lubrication systems, and common engine mechanical failures will be emphasized. The laboratory portion of the course will focus on comprehensive engine testing, in-vehicle engine servicing, engine disassembly / reassembly, precision measuring, and inspection of internal engine components. Prerequisite: ATEC 070 or equivalent (may be taken concurrently). The course is designed in conjunction with Automotive Service Excellence (ASE) standards and subsequently will prepare the student for the ASE Engine Repair A1 Certification Examination. Two hours lecture, six hours lab.

ATEC 134 4.0 Units
Automatic Transmissions/Transaxles
Prerequisite: ATEC 070 with a minimum grade of C (may be taken concurrently). Course Advisory: ATEC 131 Automotive Electrical Systems, and SCC minimum English and Math standards. The study of hydraulic and electronically actuated automatic transmissions and transaxles. Topics will include positive and variable displacement pumps, torque converters, bands and clutches, hydraulic valves, electronic shift solenoids, governors, and common compound planetary gear arrangements. The laboratory portion of the course will focus on diagnostic and overhaul procedures, in-vehicle testing, and bench testing of various components. Prerequisite: ATEC 070 or equivalent (may be taken concurrently). The course is designed in conjunction with Automotive Service Excellence (ASE) standards and subsequently will prepare the student for the ASE Automatic Transmission A2.0 Certification Examination. Two hours lecture, six hours lab.

ATEC 140 2.0 Units
Hybrid Vehicle Maintenance and Repair
Course Advisory: SCC minimum English and Math standards with a minimum grade of C. Study of hybrid vehicles, safety issues associated with hybrid vehicles, maintenance and repair procedures specific to hybrid vehicles. One hour lecture, three hours lab.

Automotive Body and Repair

AUTB 100 10.0 Units
Fundamentals of Auto Body Repair
Course Advisory: SCC minimum English standard. Acquaints the student with the basic skills and fundamental principles of auto body repair. Learned skills are verified through manipulative and written tests. Five hours lecture, fifteen hours lab.

AUTB 101 10.0 Units
Spray Paint Theory and Techniques
Prerequisite: AUTB 100. Course Advisory: SCC minimum English standard. Acquaints the student with the basic principles and techniques of automotive refinishing. Skills acquired are verified through manipulative projects and written tests. Five hours lecture, fifteen hours lab.

AUTB 102 10.0 Units
Automotive Body Panels and Frame Straightening
Prerequisite: AUTB 100. Students will learn to repair and replace body panels. Includes unibody and frame straightening. Learned skills are verified through manipulative projects and written exams. Five hours lecture, fifteen hours lab.

AUTB 103 10.0 Units
Advanced Auto Body Repair and Painting
Prerequisite: AUTB 101, 102. Students are exposed to the fine details of automotive body repair. Excellence and precision of skills are refined and quality work is emphasized. Students demonstrate their achievements through manipulative projects and written tests. Five hours lecture, fifteen hours lab.

AUTB 110 3.0 Units
Special Projects
Prerequisite: AUTB 103. Advanced projects undertaken by students in their field of specialization, under supervision of the instructor. Two hours lecture, three hours lab.