

# AUTOMOTIVE TECHNOLOGY

The **Automotive Technology** program teaches individuals the technical knowledge and skills needed to repair, service, and maintain all types of automobiles. Students study brake systems, electrical systems, engine performance and repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air condition systems. The program is competency-based as required by the National Automotive Foundation (NAFEF).

## Graduation Requirements

**Certificate in Automotive Technology:** A cumulative GPA of 2.0 or higher. A minimum of 12 credits earned toward the certificate must be completed at SENMC. Individual academic program may have additional requirements.

**AAS in Automotive Technology:** ENGL 1110G Composition I with a C- or higher; placement into college-level math and reading courses or completion of developmental courses with a C- or higher; cumulative GPA of 2.0 or higher. A minimum of 15 of the 60 credits for the associate's degree must be completed at SENMC. Individual academic programs may have additional requirements. Total credits required for degree: (63)

- Automotive Technology - Associate of Applied Science (<https://senmc-public.courseleaf.com/academic-programs/associate-degree-certificate-programs/automotive-technology/automotive-technology-aas/>)
- Automotive Technology - Certificate of Completion (<https://senmc-public.courseleaf.com/academic-programs/associate-degree-certificate-programs/automotive-technology/automotive-technology-certificate-completion/>)

### AUTO 111 Automotive Mechanics Basics 4 Credits (4)

Basic maintenance procedures of the major components of the automobile using service repair manuals, hand and power tools, precision measurement equipment, fasteners and chemicals.

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### AUTO 112 Basic Gasoline Engines 5 Credits (5)

Principles of gasoline engine operation. Identification, design, function of engine components; engine disassembly and reassembly; trouble shooting, and rebuilding heads. (2+6P)

#### Learning Outcomes

1. Graduates will demonstrate competence in the use of general and highly specialized tools and equipment.
2. Graduates will read and comprehend technical information and materials from printed and electronic sources relevant to the diagnosis and repair of automotive systems.
3. Graduates will apply technical knowledge and skills to repair, service, and maintain various types of automobiles.

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### AUTO 117 Electronic Analysis and Tune-Up of Gasoline Engines 5 Credits (5)

Theory and operation of ignition and emission control systems and fuel system. Use of troubleshooting equipment and diagnostic equipment. (2+6P)

**Prerequisite(s):** AUTO 120

#### Learning Outcomes

1. Graduates will demonstrate competence in the use of general and highly specialized tools and equipment.
2. Graduates will read and comprehend technical information and materials from printed and electronic sources relevant to the diagnosis and repair of automotive systems.
3. Graduates will apply technical knowledge and skills to repair, service, and maintain various types of automobiles.

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### AUTO 119 Manual Transmission/Clutch 5 Credits (5)

Manual transmission, transfer cases, and clutch operating principles. Students will diagnose problems, remove and replace, disassemble, repair, and assemble units. (2+6P)

#### Learning Outcomes

1. Graduates will demonstrate competence in the use of general and highly specialized tools and equipment.
2. Graduates will read and comprehend technical information and materials from printed and electronic sources relevant to the diagnosis and repair of automotive systems.
3. Graduates will apply technical knowledge and skills to repair, service, and maintain various types of automobiles.

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### AUTO 120 Electrical Systems 4 Credits (4)

Troubleshooting and repair of starters, alternators, and associated circuits. Reading electrical diagrams, diagnosis and repair of electrical accessories. (2+4P)

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### AUTO 125 Brakes 5 Credits (5)

Theory of operation, diagnosis, repair, and maintenance of disc and drum brakes; safety and use of special tools. (2+6P)

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### AUTO 126 Suspension, Steering, and Alignment 5 Credits (5)

Types of steering systems, suspension maintenance and repair, four-wheel alignment procedures. (2+6P)

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### AUTO 127 Basic Automatic Transmission 4 Credits (4)

Theory and operation of the automatic transmission; maintenance, troubleshooting, diagnosis, and repair of components. (2+4P)

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### AUTO 132 Automotive Air-Conditioning and Heating Systems 4 Credits (4)

Theory and operation, reading schematic diagrams, troubleshooting, repair, and replacement operations performed. (2+4P)

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**AUTO 137 Fuel Systems and Emission Controls 4 Credits (4)**

Covers theory and operation of fuel system and emission control. Troubleshooting, vacuum diagrams, overhaul, repair and adjustment of carburetion and fuel injection. Prerequisites: AUTO 117. (2+4P)  
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**AUTO 162 Advanced Non-Structural Repair I 4 Credits (4)**

This course will involve the students in all phases of minor non-structural collision damage repairs. It will encompass sheet metal repair, advanced panel replacement and alignment. (2+4P)  
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**AUTO 163 Advanced Non-Structural Repair II 4 Credits (4)**

This course is a continuation of AUTO 162 with emphasis in all phases of minor non-structural damage repair. The student will be instructed in sheet metal repair and panel alignment as well as the R&I of automotive glass and related components. (2+4P).

**Prerequisite(s):** AUTO 162

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**AUTO 164 Automotive Industry Collision Repair I 4 Credits (4)**

This advanced course is a continuation of AUTO 162, and 163. This course will incorporate all areas of major non-structural collision damage repair. Through practical application the student will learn how to effectively repair all heavy collision damage using current I-CAR repair standards and procedures. (2+4P).

**Prerequisite(s):** AUTO 163

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**AUTO 165 Automotive Industry Collision Repair II 4 Credits (4)**

This advanced course is a continuation of AUTO 164 with emphasis on time efficiency. This course will involve the student in all areas of major collision damage repair. The student will be exposed to all applicable I-CAR industry procedures and standards involved in sheet metal and composite panel repair. (2+4P).

**Prerequisite(s):** AUTO 164

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**AUTO 172 Introduction to Automotive Refinishing 4 Credits (4)**

This course is designed to incorporate all aspects of surface preparation, paint safety, refinishing materials, and refinishing fundamentals. Students will receive instructions for the application of acrylic enamel and base coat/clear coat refinishing systems. (2+4P)

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**AUTO 174 Intermediate Automotive Refinishing 4 Credits (4)**

This course encompasses all areas of surface preparation, damage repair and refinishing procedures that are necessary for achieving a proper spot repair. Students will also be exposed to safe work habits in the refinishing area and correct automotive detailing procedures. (2+4P)

**Prerequisite(s):** AUTO 172

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**AUTO 176 Automotive Color Adjustment & Blending 4 Credits (4)**

This course will help develop the skills needed to match any type of paint. It will expose the student to color theory, color evaluation, color matching, and other color adjustment factors. The student will be instructed in multiple panel paint blending techniques as well. (2+4P)

**Prerequisite(s):** AUTO 174

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**AUTO 178 Automotive Overall Refinishing 4 Credits (4)**

This course encompasses all areas of automotive refinishing. This advanced course is a continuation of AUTO 176 with emphasis in achieving industry refinishing times and standards consistent with that of I-CAR. The student will be exposed to surface preparation and refinishing techniques involved with overall coat/clear coat refinishing system. (2+4P)

**Prerequisite(s):** AUTO 176

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**AUTO 181 Frame and Structural Repair 4 Credits (4)**

This course will involve the student in all areas of frame and structural damage repairs. Through theory and practical application, the student will learn how to diagnose and repair various types of damage include: mash, twist, sag, and side sway. This course will expose the students to safe work habits while using measuring and straightening equipment. (2+4P)

**Prerequisite(s):** AUTO 165

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**AUTO 182 Structural Panel Replacement 4 Credits (4)**

This course is a continuation of AUTO 181 with infancies in structural panel replacement. The student will be exposed to frame and unibody measuring equipment and their proper use in sectioning procedures. Through theory and practical application the student will learn how to ID structural components, properly separate spot welds, position and weld new body panels in place. (2+4P)

**Prerequisite(s):** AUTO 181

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**AUTO 221 Cooperative Experience I 1-6 Credits**

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Student will meet in a weekly class. Graded S/U.

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