

# Automotive Technology (AUTO)

## Community and Technical College

Automotive Technology Program (<https://www.ctc.uaf.edu/programs/automotive-technology/>)  
907-455-2800

### AUTO F080 Driver and Safety Education

2 Credits  
Offered As Demand Warrants  
Driver education for the beginning driver. Alaska Driver's Manual and material necessary to gain an Alaska Driver's Permit. Defensive driving methods for accident-free driving and basic mechanical information.

**Lecture + Lab + Other:** 2 + 0 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F081 Behind-the-Wheel Training

1 Credit  
Offered As Demand Warrants  
Practical driver training in actual situations. Expected student outcome is obtaining a State of Alaska driver's license.

**Prerequisites:** Current Alaska driver's permit required.

**Lecture + Lab + Other:** 0 + 3 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F100 Introduction to Small Engine Repair

1 Credit  
Offered As Demand Warrants  
Parts and functions of a small engine and its electrical system. Dismantling procedures, cleaning and reassembly techniques, gasket-making, lubrication, troubleshooting, and minor repairs.

**Lecture + Lab + Other:** 1 + 0 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F102 Introduction to Automotive Technology

3 Credits  
Offered Fall  
Provides career information in the automotive industry. Shop safety, hand tools, fasteners, fittings, and an introduction to the major automotive systems.

**Lecture + Lab + Other:** 2 + 2 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F103 Auto Tune-Up

1 Credit  
Offered As Demand Warrants  
**Lecture + Lab + Other:** 1 + 0 + 0  
**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F110 Basic Electrical Systems

3 Credits  
Offered Spring  
The history and origins of electrical theory, the generation of electricity and diagnosis, minor repair and general servicing of alternators, starters and batteries.

**Lecture + Lab + Other:** 2 + 2 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F112 Basic Auto Maintenance

1 Credit  
Offered As Demand Warrants  
**Lecture + Lab + Other:** 0 + 0 + 0  
**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F113 Gasoline Fuel Delivery Systems

4 Credits  
Offered As Demand Warrants  
Basics of carburation and electronic fuel injection. Emphasis on theory, diagnostic/repair skills, inputs and outputs of the PCM, engine performance, use of on-board diagnostic data (OBD II) and special test equipment.

**Recommended:** AUTO F110.

**Lecture + Lab + Other:** 2 + 2 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F115 Climate Control Systems

1 Credit  
Offered Fall, Spring and Summer  
Theory, diagnostics and repair of motor vehicle air conditioning, heating and ventilation systems. R-12, R-134a, R-1234yf refrigerant recovery and related EPA regulations.

**Lecture + Lab + Other:** 0.7 + 1 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F122 Engine Theory and Diagnosis

3 Credits  
Offered Fall  
Introduction to fundamental aspects of engine design, general diagnosis and engine related service, to include combustion process, engine noise, basics of exhaust emissions, vacuum/pressure, compression, intake and exhaust systems, valve and ignition timing.

**Prerequisites:** AUTO F102 (may be taken concurrently).

**Lecture + Lab + Other:** 2 + 2 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F131 Automotive Electrical II

3 Credits  
Offered Spring  
Theory, diagnosis and repair of automotive electrical/electronic systems to include testing tools, schematics and on-board computers.

**Prerequisites:** AUTO F110.

**Lecture + Lab + Other:** 2 + 2 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F150 Brake Systems

4 Credits  
Offered Fall  
Theory, diagnosis and servicing of light- and heavy-duty vehicle hydraulic brake and traction control systems. Includes discussion and tasks on disc brakes, drum brakes, power assist systems and anti-lock/traction controls.

**Prerequisite:** AUTO F102 (may be taken concurrently).

**Lecture + Lab + Other:** 3 + 3 + 0

**Grading System:** Letter Grades with option of Plus/Minus

### AUTO F162 Suspension Alignment

4 Credits  
Offered Fall  
Theory, diagnosis and repair of suspension, steering and wheel alignment of automobiles and trucks.

**Prerequisites:** AUTO F102 (may be taken concurrently).

**Lecture + Lab + Other:** 3 + 3 + 0

**Grading System:** Letter Grades with option of Plus/Minus

**AUTO F170 Snowmachine Maintenance and Repair**

1 Credit

Offered As Demand Warrants

Fundamental skills for operation and repair. Engine tune-up, lubrication, belt and track repair, alignment and basic problems encountered during operation.

**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**AUTO F172 All-Terrain Vehicle Maintenance and Repair**

1 Credit

Offered As Demand Warrants

Teaches fundamental skills for maintenance and repair of an All-Terrain Vehicle (ATV). Engine tune-up, lubrication, clutch and belt (if applicable), transmission troubleshooting, tire and wheel repair, alignment and other basic problems encountered during operation along with safe shop procedures.

**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**AUTO F190 Automotive Practicum I**

1-6 Credits

Offered Fall and Spring

Provides supervised workplace experience in selected industry settings. Integrates knowledge and practice to achieve competencies in basic skills. A maximum of 6 credits may be earned.

**Prerequisites:** Advisor approval required.**Lecture + Lab + Other:** 0 + 0 + 1-6**Grading System:** Letter Grades with option of Plus/Minus**AUTO F202 Auto Fuel and Emissions Systems**

4 Credits

Offered Spring

Builds on the skills and knowledge gained in AUTO F122. Combustion chemistry, volumetric efficiency, design and function of emission control devices, laws and regulations concerning vehicle emissions are covered, with an emphasis on interfacing with on-board computers, automotive computer networking, and four and five gas analysis.

**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F209 Automatic Transmissions and Transaxles**

5 Credits

Offered As Demand Warrants

Automatic transmissions and transaxles. Includes the operation, diagnosis and repair of planetary gears, clutches, pumps, hydraulic controls and electronic shifting controls. Study and hands-on tasks.

**Recommended:** AUTO F110 strongly recommended.**Lecture + Lab + Other:** 4 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F215 Engine Analyzer, Scopes and Scan Tools**

4 Credits

Offered As Demand Warrants

Use and interpretation of diagnostic analyzers for spark ignition engines, digital data, fault code and input/output information retrieval, scan tool usage and other diagnostic tools used in the vehicle repair industry.

**Recommended:** AUTO F110.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F219 The Auto/Diesel Repair Business**

2 Credits

Offered As Demand Warrants

Overview of practices common in the vehicle repair industry. Includes flat rate, repair order write-up, customer relations, repair industry related OSHA and EPA regulations, and financing and acquiring a repair business.

**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F222 Automotive Engine Performance**

3 Credits

Offered Spring

Builds on skills and knowledge gained in AUTO F122 and AUTO F202. Applies strategies for diagnosing fuel and ignition systems, automotive computers and multiplexing. Includes communication strategies, on-board diagnostics, testing and diagnosis of engine performance-related components.

**Prerequisites:** AUTO F202.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F227 Automotive Electrical III**

3 Credits

Offered Spring

The theory, diagnosis and repair of automotive electrical and electronic systems to include accessories.

**Prerequisites:** AUTO F131.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus