AUTOMOTIVE TECHNOLOGY (AUTO)

AUTO F080   Driver and Safety Education
2 Credits
Offered As Demand Warrants
Driver education for the beginning driver. Alaska Driver's Manual, 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

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: Must have a
valid Alaska Driver's Permit.
Lecture + Lab + Other: 0 + 3 + 0

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

AUTO F102   Introduction to Automotive Technology
3 Credits
Offered As Demand Warrants
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

AUTO F103   Auto Tune-Up
1 Credit
Lecture + Lab + Other: 1 + 0 + 0

AUTO F106   Auto/Diesel Engine Cooling and Climate Control Systems
4 Credits
Offered As Demand Warrants
Theory, diagnostics and repair of motor vehicle A/C, heating, engine
cooling and automatic temperature control systems. Covers R-12 and
R-143 refrigerant recovery, and related EPA regulations.
Recommended: AUTO F110.
Lecture + Lab + Other: 3 + 3 + 0

AUTO F110   Basic Electrical Systems
3 Credits
Offered As Demand Warrants
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

AUTO F112   Basic Auto Maintenance
1 Credit
Lecture + Lab + Other: 0 + 0 + 0

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

AUTO F122   Engine Theory and Diagnosis
3 Credits
Offered As Demand Warrants
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.
Recommended: AUTO F110.
Lecture + Lab + Other: 2 + 2 + 0

AUTO F131   Automotive Electrical II
3 Credits
Offered As Demand Warrants
Theory, diagnosis and repair of automotive electrical/electronic systems
to include testing tools, schematics and on-board computers.
Prerequisites: AUTO F110.
Recommended: AUTO F102.
Lecture + Lab + Other: 2 + 2 + 0

AUTO F150   Brake Systems
4 Credits
Offered As Demand Warrants
Theory, diagnosis and servicing of light- and heavy-duty vehicle hydraulic
break and traction control systems. Includes discussion and tasks on
disc brakes, drum brakes, power assist systems and anti-lock/traction
controls.
Prerequisite: AUTO F110.
Lecture + Lab + Other: 3 + 3 + 0

AUTO F162   Suspension Alignment
4 Credits
Offered As Demand Warrants
Theory, diagnosis and repair of suspension, steering and wheel alignment
of automobiles and trucks.
Lecture + Lab + Other: 3 + 3 + 0

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

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). Only one type of ATV will be the focus of the class,
examples being: 4-wheelers, dirt bikes, hovercrafts. 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
AUTO F190  Automotive Practicum I  
1-6 Credits  
Offered As Demand Warrants  
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  

AUTO F202  Auto Fuel and Emissions Systems  
4 Credits  
Offered As Demand Warrants  
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.  
Prerequisites: AUTO F102; AUTO F122.  
Lecture + Lab + Other: 3 + 2 + 0  

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  

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  

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  

AUTO F222  Automotive Engine Performance  
3 Credits  
Offered as Demand Warrants  
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 F122; AUTO F202.  
Lecture + Lab + Other: 2 + 2 + 0  

AUTO F227  Automotive Electrical III  
3 Credits  
Offered As Demand Warrants  
The theory, diagnosis and repair of automotive electrical and electronic  
systems to include accessories.  
Prerequisites: AUTO F131.  
Lecture + Lab + Other: 2 + 2 + 0