STUDENT LEARNING OUTCOMES

Certificate in Automotive Technology

34 Credits

Upon graduation with the UAF/CTC Automotive Technology program, the graduate will have acquired the following skills to become an entry level automotive technician.

Auto F102 Introduction to Automotive Technology

- This class introduces you to career information in the automotive industry.
- Learn shop safety.
- Understand shop equipment.
- Identification & proper usage of automotive hand tools.
- Identification & proper usage of fasteners.
- Identify & use basic automotive measuring tools.
- An introduction to major automotive systems.
- Understand how to perform basic inspection procedures on cars and light trucks.
- Understand how to perform maintenance on cars and light trucks.

Auto F122 Engine Theory & Diagnosis

- Perform and analyze results from compression, oil pressure, vacuum, cylinder leakage, fuel pressure and cooling system checks.
- Inspect engine assembly and repair wear, noise, leaks from oil, coolant and fuel and determine necessary action for repair.
- Understand proper engine disassembly and reassembly methods.

Auto F150 Brake Systems

- Demonstrate safe shop practices to include proper tool usage, proper disposal of material waste.
- Understand mechanical and hydraulic brake system theory.
- Understand brake system diagnosis.
- Understand brake system repair.
- Understand antilock and traction control systems.
- Understand antilock and traction control diagnosis.

Auto F162 Suspension/Alignment

- Demonstrate safe shop practices to include proper tool usage, proper disposal of material waste.
- Understand base tire, wheel and suspension theory.
- Understand base steering theory.

- Understand how to service suspension and steering components.
- Understand principals of alignment.
- Understanding vibration/noise diagnosis principles.
- Practice safe work habits.

Auto F110 Basic Electrical

- Demonstrate and explain safe shop practices.
- Understand electrical terminology, schematic diagrams, laws of electricity and magnetism.
- Discuss the theory of operation and identify all components related to the charging system. Diagnose its faults and perform repairs.
- Discuss the theory of operation and identify all components related to the starting system. Diagnose its faults and perform repairs.
- Identify types of batteries, discuss theory of operation, safely test and service batteries.
- Discuss basic automotive lighting and wiring. Diagnose its faults and perform repairs.

Auto F131 Electrical II

- Understand how to read and use electrical diagrams for performing tests on electrical components and electronic systems.
- Diagnose malfunctioning sensors and actuators using various tools and workshop manual instructions.
- Be able to test electrical components and electronic systems and determine root cause of failure.

Auto F227 Electrical III

- Understand how to read and use electrical diagrams for performing tests on electrical components and electronic systems.
- Diagnose malfunctioning sensors and actuators using various tools and workshop manual instructions.
- Be able to test electrical components and electronic systems and determine root cause of failure.
- Diagnose and repair interior lighting systems.
- Diagnose and repair power door locks and windows.
- Diagnose and repair module controlled accessories.

Auto F202 Fuel & Emissions

- Demonstrate safe shop practices to include proper tool usage, proper disposal of material waste.
- Diagnose fuel related non starting and hard starting problems.

- Inspect, test and replace fuel pumps and fuel pump/pressure control systems.
- Inspect and test operation of exhaust systems and related parts.
- Diagnose emission control input sensors and output actuators for proper operation and determine necessary action.
- Retrieve Diagnostic Trouble Codes and take necessary action to repair vehicle.
- Prepare, use and interpret results of 5 gas analyzer and determine probable cause of emission failure.
- Prepare, use and locate cause of evaporative emissions failure using appropriate diagnostic equipment.

Auto F222 Engine Performance

- Diagnose ignition related engine performance problems and determine necessary action.
- Diagnose electronic engine control systems problems with appropriate diagnostic tools such as scan tools, oscilloscope and ignition diagnostic equipment.
- Check for module communication errors with scan tool and diagnose with digital volt ohm meter.
- Diagnose input sensors and output actuators for proper operation with scan tool, oscilloscope and determine necessary action.
- Diagnose engine performance no code scenarios and determine the root cause of failure using appropriate diagnostic tools and workshop manuals.
- Understand how to use workshop manual information to diagnose engine performance related issues.

Auto F190 Practicum

- Provides supervised workplace experience in selected industry settings.
- Integrates knowledge and practice to achieve competencies in basic automotive skills.