Course Information Form (CIF)

Course Code: AFD 110

Course Title: Automotive Maintenance and Light Repair

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 47.0604
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 3-3-4
Credit Hour Distribution:

Lecture: 3	Lab: 3	Clinical: 0	**Total: 4**

General Course Information

Catalog Description

Introduction to and application of entry-level skills for automotive maintenance and light repair. Emphasis on vehicle inspections, vehicle lifting procedures, and equipment; engine lubrication system service; and hybrid vehicle service safety precautions. Introduction to the On-Board Diagnostics II (OBDII) scan tool, Diagnostic Trouble Codes (DTC) retrieval, and OBDII monitor readiness.

General Course Objectives

- Students will be provided with an overview of safe vehicle operation, instruction on general hand tool use and selection, and demonstrate proficiency on vehicle lifting.
- Students will complete the steps required to inspect and service a vehicle based on the standard set by the industry for vehicle maintenance and light repair.

Minimum Placement Levels

English	Reading	Math
Placement into ENG 098	Placement into CCS 098	Placement into MAT 060

Prerequisites

None

Methods of Evaluation

The minimum number of evaluation methods will include: 3 practical exams (vehicle operation, lift use, and vehicle inspection), 4 quizzes, and 3 exams.

Instructional Materials and Additional Supplies

Revel For Automotive Technology: Principles, Diagnosis And Service Access Card (6e), 9780135580066

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Automotive Vehicle Safety	1. Identify safety concerns related to vehicle operation and service.	5	0	0
Automotive Vehicle Operation	1. Demonstrate vehicle starting procedures, automatic transmission vehicle operation procedures, and manual transmission vehicle starting and operation.	4	4	0
Automotive Vehicle Lifting Procedures	1. Identify safety precautions associated with vehicle lifting equipment. 2. Demonstrate the ability to place a vehicle on a twin post lift, set lifting points, lift the vehicle, engage safety locks, release locks, and lower the vehicle. 3. Demonstrate the ability to place a vehicle on a drive-on vehicle lift, place safety chocks, set beam jacks to lift points, lift vehicle, engage safety locks, release locks, lower vehicle, and restore beam jack to storage position.	8	10	0
Preliminary Vehicle System Inspection	1. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins. 2. Verify operation of instruction panel gauges and warning/indicator lights; reset maintenance indicators. 3. Check operation of brake stop light system. 4. Check parking brake operation and parking indicator light system operation; determine necessary action. 5. Inspect interior and exterior lamps and sockets including headlights and auxiliary lights (fog lights/driving lights); replace as needed. 6. Jump-start vehicle using jumper cables and a booster battery or an auxiliary power supply. 7. Verify windshield wiper and washer operation; replace wiper blades.	8	8	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Vehicle Fluid Specifications	1. Research applicable vehicle and service information, fluid type, vehicle service history, service precautions, and technical service bulletins. 2. Check fluid level in a transmission or a trans-axle equipped with a dipstick. 3. Check fluid level in a transmission or a trans-axle not equipped with a dipstick. 4. Check transmission fluid condition; check for leaks. 5. Inspect transmission for leakage at external seals, gaskets, and bushings. 6. Inspect for power steering fluid leakage; determine necessary action. 7. Check engine oil condition, check for leaks. 8. Check and adjust clutch master cylinder fluid level. 9. Check brake master cylinder fluid condition and for system leaks. 10. Select, handle, store, and fill brake fluids to proper level. 11. Determine proper power steering fluid type; inspect fluid level and condition. 12. Clean and inspect differential housing, check for leaks, and inspect housing vent. 13. Check and adjust differential housing fluid level. 14. Check for leaks at drive assembly seals, check vents, and check lube level. 15. Check cooling system fluid condition level and for leaks. 16. Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action.	4	5	0
Vehicle Exhaust System	1. Identify components of a vehicle exhaust system. 2. Inspect integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tailpipe(s), and heat shields; determine necessary action.	2	1	0
Vehicle Fresh Air Intake System	1. Identify and inspect; service and/or replace air filters, filter housings, and intake duct work.	1	1	0
Automotive Engine Oil Service	1. Perform engine oil and filter change. 2. Drain and refill automatic transmissions/trans-axle and final drive unit. 3. Replace fuel filter(s). 4. Check and refill diesel exhaust fluid (DEF).	4	8	0
Hybrid Vehicle Service	1. Identify hybrid vehicle internal combustion engine service/safety precautions. 2. Identify high-voltage circuits of electric or hybrid electric vehicle and related safety precautions. 3. Identify hybrid vehicle auxiliary (12V) battery service, repair, and test procedures. 4. Identify system voltage and safety precautions associated with high-intensity discharge headlights. 5. Identify hybrid vehicle air conditioner (A/C) system electrical circuits and service/safety precautions. 6. Describe the operation of a regenerative braking system.	2	2	0
Tire Pressure Monitoring Systems	1. Identify and test tire pressure monitoring systems (direct and indirect) for operation. 2. Verify operation of instrument panel lamps. 3. Aim headlights.	2	1	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Keyless Entry, Remote Start, and Push-to-Start Operation	1. Describe the operation of keyless entry, remote-, and push-to-start system operations and safety precautions. 2. Identify traction control/vehicle stability control system components.	1	1	0
OBDII Scan Tool, DTC retrieval, and OBDII Monitor Readiness	1. Retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data; clear codes when applicable.	2	2	0
Refrigeration System Components	1. Inspect and replace A/C compressor drive belts, pulleys, and tensioners; determine necessary action. 2. Inspect A/C condenser for airflow restrictions; determine necessary action. 3. Inspect engine cooling and heater systems hoses; perform necessary action. 4. Inspect A/C-heater ducts, doors, hoses, cabin filters, and outlets; perform necessary action. 5. Identify the source of A/C system odors.	2	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	45	0