AUTO 0100 - BASIC AUTOMOTIVE SERVICES AND REPAIR

Catalog Description

Hours: 108 (54 lecture, 54 laboratory)
Description: Presents introductory automotive technical skills used by entry-level service technicians. Course content includes vehicle operation, tool usage, practical measuring skills, fasteners, electrical meter usage, common automotive services and problem solving techniques. Class projects are performed in an automotive shop environment to provide a hands-on experience with common industry tools and equipment. Emphasis is placed on basic shop service operations which meet Automotive Service Excellence (ASE) maintenance and light repair standards. This course will help the student prepare for the ASE G1 service exam. (not transferable)

Course Student Learning Outcomes

- CSLO #1: Research, locate and use the repair information and diagnostic trouble codes found in repair manuals, technical service bulletins, online resources and/or all other necessary information.
- CSLO #2: Demonstrate proficiency of automotive shop safety concepts, general automotive repair hand tools, and inspection on a vehicle.
- CSLO #3: Exhibit proper use of automotive equipment and fixtures in an automotive shop.
- CSLO #4: Perform basic automotive maintenance and service procedures related to different systems of the vehicle, such as tires, oil changes, and brakes.

Effective Term

Spring 2021

Course Type

Credit - Degree-applicable

Contact Hours

108

Outside of Class Hours

108

Total Student Learning Hours

216

Course Objectives

Lecture Objectives:
1. Establish expectation standards for proper and safe use of general automotive repair hand tools.
2. Explain proper handling and disposal of various automotive chemicals following MSDS guidelines.
3. Write an automotive repair order following bureau of automotive repair, (BAR) standards.
4. Compare the similarities and differences in the process of lifting and securing a vehicle on jack stands vs. using a professional automotive lift.
5. Research vehicle service information including technical service bulletins and one-time-use parts.
6. Discuss the engine oil requirements of modern vehicle engines.7. Explain the procedure to perform a complete multi-point inspection on a vehicle.
8. Discuss the operation of the four stroke cycle engine used in passenger cars and light duty trucks.
9. Compare tire sidewall ratings, air pressure requirements and tread wear patterns.
10. Explain how on board diagnostic, (OBD) trouble codes are stored, retrieved and cleared in vehicle computer systems.
Laboratory Objectives:
1. Demonstrate safe, accurate use of common automotive hand tools and equipment.
2. Exhibit safe, proper use of automotive shop equipment including vehicle lifts, floor jacks and jackstands.
3. Look up and record vehicle service information including technical service bulletins (TSB) and one-time-use parts.
4. Apply accurate measurement techniques on automotive components.
5. Preform a complete multi-point bumper to bumper vehicle safety inspection.
6. Demonstrate the proper procedure to complete an oil change on a vehicle.
7. Perform common tire inspection and service procedures, including rotation, mounting and balance.
8. Demonstrate the proper procedure to inspect and evaluate a vehicles braking system.
9. Perform common testing procedures to test a 12 volt lead acid vehicle battery, starting and charging system.
10. Demonstrate the proper procedures to retrieve on board diagnostic, OBD trouble codes from vehicle computer systems.

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- Not Transferable

Methods of Evaluation

- Objective Examinations
  - Example: Written examination on automotive safety and service procedures. Example: What specifies the strength or grade of a SAE bolt? A)Lettering B)Bolt head markings C)Color D)None of the above
- Skill Demonstrations
  - Example: Student will demonstrate lifting and securing a light duty passenger vehicle. Example: Using a 2 post lift, students will rack, lift and secure the vehicle for undercar inspection. Grade based on industry standards.

Repeatable

No

Methods of Instruction

- Laboratory
- Lecture/Discussion
- Distance Learning

Lab:

1. Followed by instructor demonstration, students will perform an engine oil and filter change on a late model car or light duty truck. (Lab Objective 6)

Lecture:

1. Instructor lecture on the various types of engine oil, viscosity and service racings. Students are expected to participate in the discussion. (Lecture Objective 6)

Distance Learning

1. Instructor online lecture on completing automotive repair orders, followed by students writing an automotive repair order following bureau of automotive repair, (BAR) standards. Reports are posted on LMS for review and discussion. (Lecture Objective 3)

Typical Out of Class Assignments Reading Assignments

1. Reading from assigned textbook on a weekly basis and be prepared to discuss in class. Example: Read chapter about the principles of the four stroke internal combustion engine and be prepared to discuss in class. 2. Reading from supplemental material on a regular basis and be prepared to discuss in class. Example: Read material on tire inspection and rotation for passenger cars and light duty trucks and be prepared to discuss in class.

Writing, Problem Solving or Performance

1. Answer review questions in the text chapter following the reading assignment. 2. Evaluate and compare the condition of engine belts, hoses and filters. 3. Demonstrate knowledge and proficiency in tire mounting, and balance for passage car and light duty truck tires.

Other (Term projects, research papers, portfolios, etc.)

Student will research a new automotive technology and write a paper documenting its use and possible impact on the automotive repair industry.

Required Materials

- CDX Automotive Fundamentals of Automotive Technology
  - Author: VanGelder, K.
  - Publisher: Jones & Bartlett Learning
  - Publication Date: 2018
  - Text Edition: 2nd
  - Classic Textbook?: No
  - OER Link:
  - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.

Coveralls or appropriate shop clothing, safety glasses, and proper footwear