

AUTO 140A: VEHICLE MAINTENANCE

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2023
Credits:	4
Total Contact Hours:	108
Lecture Hours :	54
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	108
Total Student Learning Hours:	216
Strongly Recommended:	ENGL 101; Integrated Math 3 or Algebra 1.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Standard Letter, Pass/No Pass

Catalog Course Description

Intended for the incumbent worker, re-entry person or person seeking a career change into the automotive service industry. This course is intended to be the beginning course in the Maintenance and Light Repair (MLR) curriculum. This course is focused on developing workplace skills that will allow a student to competently perform a detailed multi-point inspection and conduct fluid maintenance on select vehicle subsystems. Appropriate lab activities are included. 54 lecture hours, 54 lab hours.

Course Objectives

- Identify vehicle labels and identification numbers and interpret the content.
- Inspect belts and hoses and identify corrective action.
- Perform accessory belt/s and hose/s removal and replacement following manufacture procedures.
- Check battery conditions using visual inspection and electronic tester to recommend corrective action by interpreting the visual and electronic test results.
- Perform brake system inspections, including brake lining thickness, and component inspection to recommend corrective action based upon manufacturer's specification.
- Locate service information on electronic service information platforms common to the industry and interpret the results.
- Document services on repair orders using "Concern, Cause, and Remedy" form and meeting the guidelines provided by the California Bureau of Automotive repair.
- Inspect the fluid condition and level and identify corrective action based on manufacturer's specification or industry standards for the following vehicle fluids: Engine oil, Automatic transmission oil, Manual transmission oil, Differential oil, Transfer case oil, Engine Coolant.
- Service the following vehicle fluids following manufacturer's procedures: Engine oil, Automatic transmission oil, Manual transmission oil, Differential oil, Transfer case oil, Engine Coolant.
- Inspect P/S and brake fluid level and condition.

- Flush the following vehicle fluids: Automatic transmission, Manual transmission, Differential oil, Engine Coolant.
- Locate the procedures and perform service/maintenance reminder resets.
- Identify tires wear and recommend corrective action, adjust tire pressure, perform tire rotations and TPM system compensation to manufacturer's specification.

Major Course Content

- Industry Exposure
 - Organizations
 - Technician credentialing and licensing
 - Industry standards
 - Careers
 - Salary expectations
 - Pay structure
 - Skill and physical requirements
- Service Equipment Usage, Procedures and Safety
 - Hand Tools
 - Vehicle Lifting Apparatus
 - Pneumatic Tools
 - Cleaning Equipment
 - Precision Measuring Tools
 - Hazardous Materials
 - Fasteners
 - Identification
 - Sealants, gaskets, and seals
- Service Literature and Vehicle Information
 - Vehicle Identification Numbers
 - Vehicle Labels
 - Specifications
 - Maintenance Schedules
 - Technical Service Bulletins
 - Safety Recalls and Special Service Campaigns
 - Locate service information on electronic service information platforms.
 - Document services on RO using CCR.
- On vehicle inspection
 - Inspect vehicle fluids:
 - Engine oil
 - Automatic transmission oil
 - Manual transmission oil
 - Differential oil
 - Transfer case oil
 - Engine coolant
 - Power steering
 - Brake fluid
 - Service vehicles fluids:
 - Engine oil
 - Automatic transmission oil
 - Manual transmission oil
 - Differential oil
 - Transfer case oil
 - Engine coolant

- c. Flush the following fluids:
 - i. Engine oil
 - ii. Automatic transmission oil
 - iii. Manual transmission oil
 - iv. Differential oil
 - v. Transfer case oil
 - vi. Engine coolant
- d. Locate the procedures and perform service reminder resets.
- e. Tires
 - i. Inspect tires for wear
 - ii. Adjust tire pressure
 - iii. Perform tire rotations
 - iv. TPM system compensation
- f. Belt and Hoses
 - i. Inspect belts and hoses for service.
 - ii. Adjust belts
 - iii. Replace belts and hoses
 - iv. Pressure test cooling system
- g. Check battery conditions using visual inspection and electronic tester
- h. Perform brake system inspection
 - i. Brake lining thickness
 - ii. Component inspection

- vii. Power steering
- viii. Brake fluid
- b. Service vehicles fluids:
 - i. Engine oil
 - ii. Automatic transmission oil
 - iii. Manual transmission oil
 - iv. Differential oil
 - v. Transfer case oil
 - vi. Engine coolant
- c. Flush the following fluids:
 - i. Engine oil
 - ii. Automatic transmission oil
 - iii. Manual transmission oil
 - iv. Differential oil
 - v. Transfer case oil
 - vi. Engine coolant
- d. Locate the procedures and perform service reminder resets.
- e. Tires
 - i. Inspect tires for wear
 - ii. Adjust tire pressure
 - iii. Perform tire rotations
 - iv. TPM system compensation
- f. Belt and Hoses
 - i. Inspect belts and hoses for service.
 - ii. Adjust belts
 - iii. Replace belts and hoses
 - iv. Pressure test cooling system
- g. Check battery conditions using visual inspection and electronic tester
- h. Perform brake system inspection
 - i. Brake lining thickness
 - ii. Component inspection

Lab Content

1. Service Equipment Usage, Procedures and Safety
 - a. Hand Tools
 - b. Vehicle Lifting Apparatus
 - c. Pneumatic Tools
 - d. Cleaning Equipment
 - e. Precision Measuring Tools
 - f. Hazardous Materials
 - g. Fasteners
 - h. Identification
 - i. Sealants, gaskets, and seals
2. Service Literature and Vehicle Information
 - a. Vehicle Identification Numbers
 - b. Vehicle Labels
 - c. Specifications
 - d. Maintenance Schedules
 - e. Technical Service Bulletins
 - f. Safety Recalls and Special Service Campaigns
 - g. Locate service information on electronic service information platforms.
 - h. Document services on RO using CCR.
3. On vehicle inspection
 - a. Inspect vehicle fluids:
 - i. Engine oil
 - ii. Automatic transmission oil
 - iii. Manual transmission oil
 - iv. Differential oil
 - v. Transfer case oil
 - vi. Engine Coolant

Suggested Reading Other Than Required Textbook

Student will complete instructor selected Pearson MyAutoLab modules that are related to the subject.

Learning Modules will include a glossary of automotive terms, a synopsis of sub-system operation and component operation.

Examples of Required Writing Assignments

Students will be assigned industry based technical article evaluation from trade journals.

Examples of Outside Assignments

Student will use electronic service information to complete guided discovery based learning.

Students will be using tables, charts and graphs along with written text to explain how a automotive sub-system works, how to inspect it and/or how to bring it back into specification during service. For example inspecting brake rotor variation of parallelism or finding circuit Amperes when Voltage and Resistance is known.

Instruction Type(s)

Lab, Lecture, Online Education Lecture