AUTO 148: ENGINE PERFORMANCE MAINTENANCE AND LIGHT REPAIR

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; MATH 144; AUTO 146 or one year of employment as automotive technician.
Transferable to CSU:	Yes
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 part of the Maintenance and Light Repair (MLR) curriculum. The course covers essential engine management system theory, along with inspection, diagnosis, service and repair of the following systems: Ignition, air and fuel delivery, electronic engine controls, and auxiliary emission controls. Course prepares students for ASE Engine Performance (A8) certification. 54 lecture hours, 54 lab hours.

Course Objectives

- Service the ignition system following manufacturer's procedures.
- Diagnose a dead hole caused by the ignition system and recommend corrective action.
- Retrieve DTCs with either a scan tool or an alternate retrieval method.
- Test input sensors and recommend corrective action.
- Perform a heath check and pull a data list in order to identify a parameter that is out of range.
- Identify ignition, fuel, and emission control devices.

Major Course Content

1. Safety issues related to ignition, fuel and exhaust systems.
2. Ignition systems inspection, service, diagnosis & repair.
    a. Spark advance
    b. Primary Ignition diagnosis
    c. Secondary Ignition Diagnosis
    d. Oscilloscopes
3. Computer control systems inspection, service, diagnosis & repair.
    a. Input sensor testing
    b. Actuator testing
    c. Feedback fuel control
    d. Electronic Fuel Injection
    e. On-Board Diagnostics
    f. Diagnostic trouble codes
    g. DTC Retrieval methods
4. Intro to engine Fuels and Combustion
5. Intro to emissions regulations
6. Intro to auxiliary emission-control devices inspection, service, diagnosis & repair.

Lab Content

1. Ignition systems inspection, service, and diagnosis.
    a. Spark advance
    b. Primary Ignition diagnosis
    c. Secondary Ignition Diagnosis
    d. Oscilloscopes
2. Computer control systems inspection, service, and diagnosis.
    a. Input sensor testing
    b. Actuator testing
    c. Feedback fuel control
    d. Electronic Fuel Injection
    e. On-Board Diagnostics
    f. Diagnostic trouble codes
    g. DTC Retrieval methods
3. Auxiliary emission-control devices inspection, service, and diagnosis.

Suggested Reading Other Than Required Textbook

Student will complete instructor selected MyAutomotiveLab e-learning modules that are related to the subject matter.

Examples of Required Writing Assignments

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

Examples of Outside Assignments

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

Instruction Type(s)

Lab, Lecture, Online Education Lecture