

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: AUT 126

Credits: 5

Course Title: Auto Fuel and Ignition Systems

Course Description: Studies automobile ignition and fuel systems and their functions in operation of the engine. Includes carburetors, fuel pumps, ignition systems, troubleshooting, engine testing and adjustment, and tune-up. Prerequisite: AUT 242. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

General Course Purpose: To examine fuel and ignition system operational principles, components, and their function in the operation of internal combustion engines. Safety will be emphasized.

Course Prerequisites and Co-requisites:

Prerequisite: AUT 242

Student Learning Outcomes:

Upon completing the course, the student will be able to

- a. Describe the operating principles of carburetion, fuel injection, and ignition systems;
- b. Describe the component parts of automotive fuel and ignition systems and their specific functions;
- c. Describe the carburetor and ignition circuits and their operating functions;
- d. Identify the defects in automotive fuel and ignition systems, their cause, and how they affect engine operation;
- e. Demonstrate testing and trouble-shooting of fuel and ignition systems and the proper use of test equipment; and
- f. Analyze fuel system defects and determine the extent of repairs and adjustments necessary to correct deficiencies.

Major Topics to Be Included:

- a. Basic internal combustion engine theories of operation
- b. Safety practices, special service tools, and equipment
- c. Computers and input sensors
- d. Distributor and electronic ignition systems
- e. Fuel tanks, lines, filters, and pumps
- f. Computer-controlled carburetors
- g. Electronic fuel injection
- h. Scan testers, digital storage oscilloscopes, and on-board diagnostics II
- i. Emission control systems, part I
- j. Body computer systems
- k. Fundamentals of carburetion
- l. Carburetor diagnosis, service, and repair
- m. Fuel injection diagnosis, service, and repair
- n. Fuel injection systems
- o. Tests and repair for electrical systems
- p. Trouble-shooting and tune-up practices, tests, and procedures
- q. Contact points and electronic ignition systems
- r. Emission controls

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