

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: AUT 111

Credits: 4

Course Title: Automotive Engines I

Course Description (including lecture hours, lab hours, total contacts)

Presents analysis of power, cylinder condition, valves and bearings in the automotive engine to establish the present condition, repairs or adjustments. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week

General Course Purpose: Identify, care and use of hand tools, power tools, and precision measuring equipment. Discuss the basic theory, operation, and repair of internal combustion engines. Safety will be emphasized.

Course Prerequisites/Corequisites (*Entry-level competencies **required** for enrollment*)
None

Course Objectives (Each item should complete the following sentence.)

Upon completing the course, the student will be able to:

- a. Identify, care for and properly use, hand & power tools
- b. Demonstrate a knowledge of safety in all areas of automotive shop operations
- c. Demonstrate the ability to use precision measuring tools
- d. Explain the theory and functioning of internal combustion engines (ICE)
- e. Identify and list various types of engines and their operational advantages and disadvantages
- f. Demonstrate general overhaul and repair of ICE components
- g. Demonstrate general overhaul and repair procedures on selected ICE
- h. Demonstrate proper maintenance and preventative maintenance procedures on ICE

Major Topics to be Included

- a. Shop Safety
- b. Personal Safety
- c. Tool and Equipment Safety
- d. Measuring Systems (standard and metric)
- e. Introduction to Internal Combustion Engines
- f. Noise Diagnosis
- g. Engine Disassembly
- h. Short Blocks
- i. Cylinder Block Cleaning and Reconditioning
- j. Installing Main Bearings and Crankshaft
- k. Piston and Piston Rings
- l. Cylinder Heads and Valves
- m. Camshafts and Valve Trains
- n. Installing and Timing of Components
- o. Lubricating and Cooling Systems
- p. Intake and Exhaust Systems
- q. Engine Sealing and Reassembly
- r. Adhesives, Sealants, and Other Chemical Sealing Materials

Effective Date of Course Content Summary (Month, Date Year): February 9, 2009