J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: AUT 111 **Credits:** 4

Course Title: Automotive Engines I

Course Description: 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 and Co-requisites:
None

Course Objectives:
Upon completing the course, the student will be able to
a. Explain the theory and functioning of internal combustion engines (ICE);
b. Identify and list various types of engines and their operational advantages and disadvantages;
c. Demonstrate general overhaul and repair of ICE components;
d. Demonstrate general overhaul and repair procedures on selected ICE;
e. Demonstrate proper maintenance and preventative maintenance procedures on ICE;
f. Identify various engine failures and the causes;
g. Demonstrate basic tests to check the mechanical condition of the engine;
h. Demonstrate basic tests of the engine cooling system;
i. Demonstrate basic tests of the engines lubrication system;
j. Demonstrate various internal maintenance procedures related to the engine; and
k. Demonstrate various in-vehicle repairs of an engine.

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, component identification, overhaul procedures and reassembly
h. Installing and Timing of Components
i. Lubricating and Cooling Systems
j. Intake and Exhaust Systems
k. Engine Sealing and Reassembly
l. Adhesives, Sealants, and Other Chemical Sealing Materials
m. Engine failures
n. Basic engine tests

o. Coding system tests
p. Lubrication system tests
q. In-vehicle repairs
r. Periodic maintenance

Effective Date of Course Content Summary: December 9, 2015