

**J. Sargeant Reynolds Community College**  
**Course Content Summary**

**Course Prefix and Number:** AUT 155

**Credits:** 5

**Course Title:** Basic Automotive Engine Performance Diagnostics

**Course Description:** Introduces basic engine performance concepts, including theory and practical application. Covers vehicle communications, scan-tool diagnostics, basic engine mechanical tests, and diagnosing and repairing vehicle drivability issues. Provides preparation for the Automotive Service Excellence (ASE) A8 Engine Performance Certification examination. Prerequisites: AUT 111 and AUT 245, or program head approval. Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week.

**General Course Purpose:** This course introduces anyone studying automotive service technology, hobbyists, and service technicians to the safe and proper procedures for diagnosing and repairing vehicle drivability issues.

**Course Prerequisites and Co-requisites:**

Prerequisites: AUT 111 and AUT 245, or program head approval

**Student Learning Outcomes:**

Upon completing the course, the student will be able to

- a. Understand engine performance concepts;
- b. Understand proper use of scan tools and their diagnostic capabilities;
- c. Define the basic internal combustion engine principles;
- d. Explain the functions of modern automotive computer systems;
- e. Identify control system terms and components;
- f. Interpret basic engine mechanical tests;
- g. Analyze engine performance problems;
- h. Evaluate engine performance problems using a scan tool;
- i. Properly diagnose and repair engine drivability (performance) issues; and
- j. Properly diagnose and repair vehicle fuel and ignition systems.

**Major Topics to Be Included:**

- a. Engine integrity
- b. Fuel systems, components, and service
- c. Gasoline and diesel fuel engine design and components
- d. Engine-related inputs
- e. Process and outputs
- f. Troubleshooting engine performance issues using various scanners and labsopes
- g. Evaluating diagnostic trouble codes (DTCs)
- h. OBDII monitors
- i. Basic emissions control systems
- j. Ignition systems, components and service
- k. Vehicle performance (drivability)

**Effective Date of Course Content Summary:** January 30, 2018