

**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. Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week. 5 credits

General Course Purpose:

The purpose of this course is to introduce basic engine performance concepts, including theory and practical application. Vehicle communications, scan-tool diagnostics, basic engine mechanical tests, and diagnosing and repairing vehicle drivability issues are covered. The course is designed to prepare students for the Automotive Service Excellence (ASE) A8 Engine Performance Certification examination.

Course Prerequisites and Co-requisites:

Prerequisites: AUT 149

Student Learning Outcomes:

Upon completing the course, the student will be able to

- define the basic internal combustion engine principles.
- explain the functions of the modern automotive computer systems.
- identify control system terms and components.
- interpret basic engine mechanical tests.
- analyze engine performance problems.
- evaluate and repair engine performance problems using a scan tool.
- diagnose and repair engine performance issues.

Major Topics to Be Included:

- Gasoline and diesel fuel engine design and components
- Engine-related inputs
- Process and outputs
- Troubleshooting fuel and ignition issues
- Troubleshooting engine performance issues using various scanners and labscopes
- Evaluating Diagnostic Trouble Codes (DTCs)
- OBDII Monitors
- Basic emissions control systems

Effective Date/Updated: November 1, 2022