

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: AUT 281 **Credits:** 4

Course Title: Drivability and Emissions - OEM

Course Description:

Studies operation, inspection, diagnosis, service and repair of engine management concerns. Continues instruction of the fuel management system emphasizing fuel trim diagnosis, misfire diagnosis, and all levels of emissions control systems. This course is intended for students in an original equipment manufacturer (OEM) training program. Part II of II. Lecture 2 hours. Laboratory 8 hours. Total 10 hours per week. 4 credits

General Course Purpose:

This course is intended for students in an OEM training program to provide specific instruction and hands-on practice of the OEM's engine and emissions systems. The course focuses on the tools and equipment, strategies for diagnosis, and repair of OEM-specific advanced-level engine performance concerns.

Course Prerequisites and Co-requisites:

- **Prerequisite:**
 - Acceptance and good standing in the original equipment manufacturer (OEM) training program.
 - AUT 181 Electrical I – OEM or program head approval.
 - AUT 184 Engine Controls – OEM
- **Co-Requisite:**
 - None

Student Learning Outcomes:

Upon completing the course, the student will be able to

- Prepare to sit for the A8 ASE – Engine Performance Certification Exam
- Prepare to sit for the L1 ASE – Advanced Engine Performance Specialist Exam
- Achieve original equipment manufacturer-level certification as an Engine Performance Diagnostic Specialist
- Develop strategies to diagnose misfire, fuel-trim, no-code and other advanced drivability concerns
- Diagnose and repair emissions system failures

Major Topics to Be Included:

- OBDII scan tool modes, monitors, and drive cycles
- Identify NOx, HC, and CO emissions control devices and develop diagnostic strategies and tactics utilized in diagnosing emissions related failures
- Use fuel trim numbers to diagnose drivability related faults
- Use fuel trim and volumetric efficiency calculations to diagnose misfires and no-code drivability complaints.
- Other technologies as required by the OEM's specifications

Effective Date/Updated: January 1, 2023