

J. Sargeant Reynolds Community College
Course Content Summary

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

Course Title: Electrical II - OEM

Course Description:

Studies computer-controlled, multiplexed electrical systems and architecture, properties, operation, diagnostics, and service and repair. Develops diagnostic strategies to locate and repair electrical faults in computer-controlled and multiplexed systems. Focuses on performing voltage drop testing in computer-controlled circuits and digital oscilloscope testing of multiplexed systems. This course is intended for students in an original equipment manufacturer (OEM) training program. Prerequisites: acceptance and good standing in the original equipment manufacturer (OEM) training program and AUT 181 or program head approval. Part II of III. 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

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