

Revised 03/2015

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
AUT 215 - EMISSIONS SYSTEMS DIAGNOSIS AND REPAIR (2 CR.)

Course Description

Presents logical diagnostic paths to identify vehicle HC-CO, O2, and NOx failure areas, Teaches a progression of failure detection from most likely to more complex causes. Emphasizes use of infrared analyzer and manufacturer's specified adjustments. Lecture 2 hours per week.

General Course Purpose

This course is designed to provide practicing automotive technicians with specialized training in the sampling and analysis of vehicle exhaust emissions. The student will become acquainted with State and Federal laws pertaining to vehicle exhaust emissions and their control. Students will be instructed in the use of the latest test equipment designed to measure varying concentrations of different exhaust gases. Through the efficient use of a logical and systematic diagnostic procedures, the student will be able to determine the operating conditions of the engine and related emission control devices and make any needed repairs or adjustments.

Course Prerequisites/Corequisites

Prerequisites: AUT 111 or AUT 241

Course Objectives

Upon completion of this course, the student should be able to:

- Describe the most significant features of State and Federal laws regarding vehicle exhaust emissions and their control
- Locate and identify the various emission control devices used by automotive manufacturers
- Explain the purpose of each emission control device
- Explain the cause and effect relationship of combustion efficiency and exhaust emissions
- Demonstrate the efficient use and operation of an infrared gas analyzer
- Identify excessive exhaust emissions
- Explain the proper procedures required to diagnose and repair a vehicle with excessive emissions
- Explain the basic operation, diagnosis and repair using available on-board diagnostic systems

Major Topics to be Included

- Pollution types of emissions, legislation and trends
- Cause and effect
- Demonstration and exercises on the infrared analyzer used in the inspection and control of emissions
- Types of emissions inspections failures, excessive HC, CO, NOx and HC/CO
- Correction procedure for excessive HC, CO and NOx
- Four and five gas analysis
- Repairing, Inspection and Maintenance (I/M) failures on computer controlled automobile
- OBD II inspection and maintenance (I/M) test procedures