

COURSE PREFIX /NO:           **AUT 146**  
COURSE TITLE:               **EMISSION SYSTEMS**  
LEC HRS/WEEK:               **2.0**  
LAB HRS/WEEK:               **3.0**  
CREDIT HRS/SEMESTER:       **3.0**

[DL ATTENDANCE/VA STATEMENT](#)  
[TEXTBOOK INFORMATION](#)

## **COURSE DESCRIPTION**

This course is a study of the various emission systems currently in use with emphasis on the importance of proper system operations, the effects of improper operation on engine performance, and diagnostic equipment.

## **COURSE COMPETENCIES**

Upon successful completion of this course, the student should be competent to perform the following tasks:

### **Module 1. Positive Crankcase Ventilation**

1. Diagnose oil leaks, emissions, and drivability problems resulting from failure of the positive crankcase ventilation (PCV) system; determine necessary action.
2. Inspect and test positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses; perform necessary action.

### **Module 2. Exhaust Gas Recirculation**

1. Diagnose emissions and drivability problems caused by failure of the exhaust gas recirculation (EGR) system; determine necessary action.
2. Inspect, test, service and replace components of the EGR system, including EGR tubing, exhaust passages, vacuum/pressure controls, filters and hoses; perform necessary action.
3. Inspect and test vacuum/pressure controls, filters, and hoses of exhaust gas recirculation (EGR) systems; perform necessary action.
4. Inspect and test electrical/electronic sensors, controls, and wiring of exhaust gas recirculation (EGR) systems; perform necessary action.

### **Module 3. Exhaust Gas Treatment**

1. Diagnose emissions and drivability problems resulting from failure of the secondary air injection and catalytic converter systems; determine necessary action.
2. Inspect and test mechanical components of secondary air injection systems; perform necessary action.
3. Inspect and test electrical/electronically-operated components and circuits of air injection systems; perform necessary action.
4. Inspect and test components of catalytic converter systems; perform necessary action.
5. Prepare four or five gas analyzer; inspect and prepare vehicle for test, and obtain exhaust readings; interpret readings, and determine necessary action.
6. Inspect and test catalytic converter performance.

#### **Module 4. Intake Air Temperature Controls**

1. Diagnose emissions and drivability problems resulting from failure of the intake air temperature control system; determine necessary action.
2. Inspect and test components of intake air temperature control system; perform necessary action.

#### **Module 5. Early Fuel Evaporation (Intake Manifold Temperature) Controls**

1. Diagnose emissions and drivability problems resulting from failure of early fuel evaporation control system; determine necessary action.
2. Inspect and test components of early fuel evaporation control system; perform necessary action.

## **Module 6. Evaporative Emissions Controls**

1. Diagnose emissions and drivability problems resulting from failure of evaporative emissions control system; determine necessary action.
2. Inspect and test components and hoses of evaporative emissions control system; perform necessary action.
3. Interpret evaporative emission related diagnostic trouble codes (DTCs); determine necessary action.

## **COURSE REQUIREMENTS**

Students are responsible for attaining competencies through completion of the following course requirements:

### **ATTENDANCE:**

Students will be bound by the policies stated in the York Technical College Student Handbook. Students must attend 80% of the hours assigned the class for a semester to receive credit for the course. In case a student does miss a class, the student is responsible for obtaining the material that was covered during the absence. If a student is aware that a class will be missed, then the student should notify the instructor at the earliest possible date. Students with unexcused absences during tests will be allowed to make up tests at the discretion of the instructor. The student has the burden to be sure that some arrangement has been made with the instructor for taking a make-up test.

### **ACADEMIC HONESTY**

York Technical College adheres to the South Carolina Tech Student code, approved by the State Board for Technical and Comprehensive Education on March 13, 1974( revised last April, 25 1984). Copies of this code are available in the Library and from Student Services. Any student involved in cheating or any other academic dishonesty will be given a grade of zero and will be subject to further disciplinary action. See the student handbook section “Student Life” subheading “Student Conduct” for further details.

### **PARTICIPATION IN CLASS**

Students will be expected to participate in class discussions, to demonstrate problem solving techniques, to complete tests, homework, lab experiments, lab reports and other assigned work.

## EVALUATION STRATEGIES / GRADING

The grading scale will be as follows:

### Grade Points

A	90-100
B	80-89
C	70-79
D	60-69
F	00-59

### Evaluation Method

Tests may be written or oral and may contain questions that are true or false, short answer, multiple choice, fill in the blank and/or problems. Students should refer to the instructor for the number of tests to be given and the material to be covered on each test. Each test will be of equal weight unless otherwise indicated by the instructor. Lab grades will be based on the completion of the Course Competencies, team work, safety, class participation, and housekeeping.

Final grades will be determined as follows:

Module 1.	Tests	5.5%
Module 1.	Lab	11.16%
Module 2.	Test	5.5%
Module 2.	Lab	11.16%
Module 3.	Test	5.5%
Module 3.	Lab	11.16%
Module 4.	Test	5.5%
Module 4.	Lab	11.16%
Module 5.	Test	5.5%
Module 5.	Lab	11.16%
Module 6.	Test	5.5%
Module 6.	Lab	<u>11.16%</u>
Total Grade		100%

**ENTRY-LEVEL SKILLS**

Students should demonstrate hand eye coordination, manual dexterity, and be able to work in an industrial environment.

**PREREQUISITES**

None

**CO-REQUISITES**

None