



El Camino College Course Syllabus

ATEC 24 Fuel Systems and Emissions

Section # 7268

Instructor Name: *Mr. Anderson*Phone Number: *310-660-3600 ext. 3303*E-mail: *mianderson@elcamino.edu*Class Hours: *Tues., Thurs. 7:00pm-10:10pm*

Course Description:

This course covers the study of fuel system service, testing and diagnosis, including fuel injection and computer controlled fuel systems. Laboratory activities stress the proper use of test equipment utilized in the automotive field.

Recommended Preparation: Automotive Technology 21, 23 or equivalent.

Student Learning Outcomes:

Upon completion of this course, students will be able to:

- Given an in class exam, based on readings, classroom discussions and demonstrations, the student will be able to work in the Automotive Shop safely and pass the Automotive Safety Exam with 100% accuracy.
- The student will test and evaluate engine condition and performance using an Engine Analyzer/Scanner lab worksheet to manufacturer specifications. .
- The student will be able to test the performance of an automotive fuel system using the Fuel System Performance Testing lab worksheet and manufacturer specifications. .

Required Textbooks:

Automotive Engine Performance, 4th Edition, James D. Halderman, Pearson Education Inc., ISBN-10: 0-13-302775-9, ISBN-13: 978-0-13-302775-4

Course Content: Weekly Course Topics

Week 1: Course Introduction, Safety

- *Safety Test*

Week 2: Gasoline Engine Operation, Parts, and Specifications

- *Chapter 3*

Week 3: Cooling System Operation and Diagnosis

- *Chapter 8*

Week 4: Engine Condition Diagnosis, Gasoline

- *Chapter 13 & 5* Exam Ch. 3& 8 Sept. 16, 2014

Week 5: Gasoline, Fuel Pumps, Lines and Filters

- *Chapter 5 & 26*

Week 6: Computer and Network Fundamentals

- *Chapter 18* Exam Ch. 5, 13 & 26 Sept. 30, 2014

Week 7: Onboard Diagnosis

- *Chapter 19*

Week 8: Temperature Sensors, Throttle Position Sensors, MAP/BARO Sensors

- *Chapter 20, 21 & 22* Exam Ch. 18 & 19 Oct. 14, 2014

Week 9: Mass Air Flow Sensors, Oxygen sensors, Wide-Band Oxygen Sensors

- *Chapter 23, 24 & 25*

Week 10: Fuel Injection Components and Operation, Gasoline Direct-Injection Systems

- *Chapter 27 & 28* Exam Ch. 20 - 25 Oct. 28, 2014

Week 11: Electronic Throttle Control, Fuel-Injection System Diagnosis and Service

- *Chapter 29 & 30*

Week 12: Vehicle Emission Standards and Testing

- *Chapter 31* Exam Ch. 27 - 30 Nov. 11, 2014

Week 13 & 14: Emission Control Devices Operation and Diagnosis

- *Chapter 32* Exam Ch. 31 & 32 Nov. 25, 2014

Week 15: Scan Tools and Engine Performance Diagnosis

- *Chapter 33*

Week 16: Course Review Tues. Dec. 9th

Final Exam Thursday Dec. 11, 2014

Instructional Methods:

The course will be delivered through a variety of methodologies, including the following:

- ◆ Lectures combined with presentations using computer software (PowerPoint), the Internet, and videos/DVDs
- ◆ Interactive discussions in which students will be expected to actively participate
- ◆ Written assignments-Homework
- ◆ Lab/shop assignments
- ◆ Group work/shop activities
- ◆ Bi-weekly Exams and a Final Exam

Grading Criteria:

The following grading scale will be used in calculating the final grade:

Homework, Lab Assignments	25%
Exams	25%
Attendance	25%
<u>Final Exam</u>	<u>25%</u>
	100%

Grading Scale:

90 – 100%	A
80 – 89%	B
70 – 79%	C
65 – 69%	D
Below 65%	F

Policies/Procedures:

- Students must attend class. Cell phone use in class is prohibited. No food in classroom.
- Students are expected to dress and act professionally on a daily basis. Students are also required to follow all safety precautions and requirements while in shop and laboratories.
- **NO PARKING IN THE SHOP UNLESS APPROVED BY YOUR INSTRUCTOR.**
TURN OFF ALL Cellular phones, I-pods, MP3, Radios, etc. during class time.
- No smoking inside of the building.
- **IT IS THE STUDENTS RESPONSIBILITY TO KEEP THE SHOP AREA CLEAN.**

Disability: El Camino College adheres to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations for students with temporary and permanent disabilities. If you have a disability that may adversely affect your work in this class, I encourage you to register with the Special Resource Center (SRC).