

COURSE TITLE: Automotive Engine Performance Analysis I
(AUMT_2417-6A1)

CREDIT

3 Semester Credit Hours

MODE OF INSTRUCTION

Face to Face

INSTRUCTOR CONTACT INFORMATION

Instructor: Bob Hodnett

Email: rhodnett@lit.edu

Office Phone: 409-257-0065

Office Location: ATC-#104

Office Hours: Tuesday/Thursday 10:45a.m.-1:40p.m. pm during semester. By appointment only.



**LAMAR INSTITUTE
OF TECHNOLOGY**

PREREQUISITE/CO-REQUISITE:

(NONE)

COURSE DESCRIPTION

The AUMT_2417 course describes automotive fuels and combustion efficiency. Describes fuel tanks, pumps lines and filters. The student is engaged in gasoline injection fundamentals along side of gasoline injection diagnosis and service. This course explains today's ignition system technology's along with ignition system diagnosis and service and includes exhaust system technology diagnosis and service which also covers turbochargers and superchargers-operation diagnosis and service.

COURSE OBJECTIVES

At the end of this course each successful student should be able to:

Explain combustion in: gasoline, diesel fuel and alternative fuel engines to include fuel systems, fuel supply systems and service. They will be able to comprehend and explain ignition system fundamentals to include spark plugs, secondary wires, ignition coils and the different types of ignition systems, to include ignition system diagnosis, spark plug service, secondary wire service, ignition coil service, and ignition system sensor service. The last but not least objective for this course is that the students understand exhaust system: operation, their components, and the design. As well as service and repairs too include turbochargers and superchargers operation theories and how to service these complex systems.

REQUIRED TEXTBOOK AND MATERIALS

1. Modern Automotive Technology (Digital Textbook)
Author: James E. Duffy/Brian Lacroix
Publisher: Goodheart and Willcox Company, Inc.
ISBN # 979-8-89118-991-1 11th edition *
2. Modern Automotive Technology (Digital Workbook))
Author: James E. Duffy/Brian Lacroix
Publisher: Goodheart and Willcox Company, Inc.
ISBN # 979-8-89118-991-1 11th edition *
3. Modern Automotive Technology (Digital Shop Manual)
Author: James E. Duffy/Brian Lacroix
Publisher: Goodheart and Willcox Company, Inc.
ISBN # 979-8-89118-991-1 11th edition *

4. Notebook and 8.5" x 11" notebook paper

5. Blue and Black ink pen.

6. Lap top or Tablet with internet capability's

7. SAFETY GLASSES-clear (Glasses must meet ANSI standards, Z87 or Z87plus) as per OSHA 1910.133

ATTENDANCE POLICY

1. Missing more than 20% of classes will result in an automatic "F" for the course.
2. Absences are counted for unexcused, excused and coming to class late.
3. Missing more than 20% of a class period will count as an absence.
4. Being tardy 3 times equals 1 absence.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process.
If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

Course Schedule

Week#	Topic	Reference
1/2/3	Course introduction, policies, Automotive fuels & combustion efficiency • Lecture/Lab • Chapters 62 • Quiz	
4/5/6	Fuel tanks, pumps, lines, & filters. Gasoline injection fundamentals • Lecture/ Lab • Chapter 63,64 • Quiz	
7/8	Gasoline injection diagnosis & service • Lecture/Lab • Chapter 65 • Review Chapters 62,63,64 • Test	
9/10	Ignition system technology • Lecture/Lab • Chapter 66 • Review Chapter 65 • Quiz	
11/12	Ignition system diagnosis & service • Lecture/Lab • Chapter 67 • Review Chapter 66 • Quiz	
13/14/15	Exhaust system technology, diagnosis & service. Turbochargers & superchargers-operation, diagnosis & service • Lecture/Lab • Chapter 68,69 • Review Chapters:62 thru 69 • Test	
16	Finals Week Test	

Calendar dates are subject to change due to unforeseen circumstances.

Check Blackboard for any changes in due dates

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

Daily work, quizzes, assignments.	40%
Lab	30%
Homework	15%
<u>Final Exam</u>	<u>15%</u>
<i>Total</i>	<i>100%</i>

GRADE SCALE

- 90-100 A
- 80-89.9 B
- 70-79.9 C
- 60-69.9 D
- 0-59.9 F

TECHNICAL REQUIREMENTS

1. The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email

specialpopulations@lit.edu. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

ARTIFICIAL INTELLIGENCE STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION

No Cell Phone or unauthorized **Electronic Devices** allowed to be used in class, unless it is approved by the instructor, for a special reasoning. ***All cell phones must be turned off and put away. Text messaging during class time will not be tolerated. Text messaging during an exam will be considered academic dishonesty. The exam will be considered over and the student will receive a zero for the exam.***

2. **No** smoking or use of any **tobacco** products allowed
3. Do not bring any **food** or **drinks** in class
4. No visitor allowed in class including children
5. **Do not disturb lecture for any reason. If you must leave class or come in late, do so without disturbing class.**
6. **DRESS CODE:** Proper work attire only, **NO Open shoes, Short pants, low riding, or sleeveless shirts,** will be allowed in any program classrooms.

7. **No grades will be dropped**, No homework or assignments can be made up or accepted after instructor has taken up for grading.
8. **Student MUST sign in on daily individual course sign in sheet. NO sign in equals absent that day.**
9. Assignment must be turn in at the beginning of class
10. Any student caught cheating will be dropped from class and given an F for the semester grade.
11. Students are required to be present for all examinations and lectures.
12. There is NO MAKE-UP for missing any quizzes or major test or exams
13. Learning activities will be subjectively graded by the instructor. Students assigned to a group must be present at all times when the project is being worked on.
14. Instructor will reply to students email in a reasonable time or within 3 working days. Not available on Friday, Saturday, Sundays, Holidays or days the campus is closed.

NOTE:

Students who violate any of these policies will be asked to leave class and given an absent for the class period. Students who are continuing disturbing classes will be suspended from class for the remainder of the semester and given an grade of F.

Students may vary in their competency levels on these abilities. You can expect to acquire these abilities only if you honor all course policies, attend classes regularly, complete all assigned work in good faith and on time, and meet all other course expectations of you as a student.

Course Outline:

Engine Performance and emission Control Systems:

Automotive fuels and combustion efficiency

Fuel tanks, pump, lines, and filters

Gasoline injection fundamentals

Gasoline injection diagnosis and service

Ignition system technology

Ignition system diagnosis and service

Exhaust system technology, diagnosis and service

Turbochargers and superchargers-operation, diagnosis, and service