COURSE TITLE (Automotive Engine Theory (AUMT 2305 3A1)

CREDIT
3 Semester Credit Hours (3 hours lecture, 0 hours lab)

MODE OF INSTRUCTION
Face to Face

PREREQUISITE/CO-REQUISITE:
None

COURSE DESCRIPTION
Fundamentals of engine operation and diagnosis including lubrication and cooling systems. Emphasis on identification of components, measurements, inspections, and repair methods for most Gasoline Engines

COURSE OBJECTIVES

Upon completion of this course, the student will be able to:
1. Explain appropriate safety procedures.
2. Demonstrate familiarity with historical development and information on the automotive industry.
3. Demonstrate safe, professional, and responsible work practices.
4. Identify and demonstrate the proper use of shop equipment and tools.
5. Identify and describe functions of vehicle subsystems.
6. Demonstrate the use of service publications.
7. Understand procedure for automotive maintenance “A” check.

INSTRUCTOR CONTACT INFORMATION

Instructor:	Pete Matak III
Email:	pmatak@lit.edu
Office Phone:	409 247 5058
Office Location:	ITC-2 104
Office Hours:	Monday / Wednesday 1:30 – 2:30 pm during semester

REQUIRED TEXTBOOK AND MATERIALS
1. Modern Automotive Technology Author: James E. Duffy Publisher: Goodheart – Willcox Company ISBN13: 978-1-61960-370-7, 8th edition
2. Modern Automotive Technology- Work Book Author: James E. Duffy Publisher Goodheart – Willcox Company ISBN13: 978-1-61960-375-2, 8th edition
3. Notebook and 8.5” x 11” notebook paper
4. Blue and Black ink pens

Approved: PMIII / 1-30-2026

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 CALENDAR

Date Week	TOPIC	READINGS	ASSIGNMENTS
1-21-2026 Week 1	Course introduction and policies	Syllabus / Handouts Lecture 1-21-2026	Review Handouts and Class Quizzes 1-26-2026
1-26-2026 Week 2-3	Auto Shop Safety	Chapter 5 Power point 2-12-2026	Complete assigned Review, ASE and Workbook Questions. Class Quizzes 2-9-2026
2-11-2026 Week 4- 5	Engine Fundamentals and Design Classification	Chapter 11 Power point 2-18-2026	Complete assigned Review, ASE and Workbook Questions. Class Quizzes 2-23-2026
2-25-2026 Week 6-7	Engine Top, Bottom, and Front End Construction	Chapter 13, 14 & 15 Power point 3-4-2026	Complete assigned Review, ASE and Workbook Questions. Class Quizzes 3-16-2026
3-18-2026 Week 8-9	Engine Size, Performance Measurements	Chapter 16 Power point 3-25-2026	Complete assigned Review, ASE and Workbook Questions. Class Quizzes 3-30-2026
4-1-2026 Week 10-11	Cooling System Fundamentals, Testing, and Maintenance	Chapter 47 & 48 Power point 4-8-2026	Complete assigned Review, ASE and Workbook Questions. Class Quizzes 4-13-2026
4-15-2026 Week 12-13	Lubrication system Fundamentals	Chapters 49 & 50 Power point 4-22-2026	Complete assigned Review, ASE and Workbook Questions. Class Quizzes 4-27-2026

4-26-2026 Week 14-15	On Board Diagnostics and Scan Tools	Chapter 24 Power point 4-29-2026	Complete assigned Review, ASE and Workbook Questions. Class Quizzes 5-4-2026
5-6-2026 Week 16	Final Project and final exam	Lecture/Review Prepare for final exam 5-6-2026	Final Exam Period 5-11-2026

Calendar Dates are subject to change due to unforeseen circumstances.
Check blackboard for any changes in due dates in announcements.

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

- Final grades will be calculated according to the following criteria:
- Daily work, quizzes, and homework assignment. 45%
- Test over Lecture and Chapters 35%
- Outside assignment or class presentation. 0%
- Final Exam 20%
- Total 100%

GRADE SCALE

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

TECHNICAL REQUIREMENTS

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

Course Policies

1. **No Cell Phone** or **Electronic Devices** allowed in class, unless it is known to 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. **Homework** must be done **in proper outline form, neat and legible**, prepared on **loose leaf (8.5" X 11") note book paper**, written only on **one** side.
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.

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

A. Safety and Shop Policy
1. Auto shop Layout
2. Shop Safety
3. General Safety Rules
4. Customer Relations

B. Engine Fundamentals
1. Engine Operation
2. Engine Bottom End
3. Engine Top End
4. Engine Front End

C. Engine Design Classification
1. Cylinder arrangement
2. Alternative fuels
3. Typical automotive engines

D. Engine Top, Bottom, and Front-End Construction
1. Top end construction
2. Bottom end construction
3. Front end construction

E. Engine Size and Performance Measurement
1. Determine engine size
2. Engine terms
3. Torque and horse power

F. Cooling System Fundamentals
1. Cooling System Functions
2. Cooling System Operation
3. Cooling System Types
4. Basic cooling system
5. Closed & Open Cooling Systems
6. Cooling System Instrumentation
7. Antifreeze and Conditioners
8. Engine Heaters

G. Coolant Testing and Maintenance
1. Cooling diagnosis
2. Cooling problems
3. Coolant service
4. Components service

H. Lubrication System Fundamentals
1. Lubrication System Functions
2. Lubrication System Operation

3. Positive Crankcase Ventilation System
4. Oil Pressure Indicator
5. Industry Trend

I. Lubrication system testing and service

1. Lubrication System Function
2. Lubrication System Problems
3. Lubrication service
4. Components service

J. On-Board Diagnostics and Scan -Tools

1. On-Board Diagnostic Systems
2. Scanning Computer Problems
3. Energizing OBD I Systems without a Scan Tool
4. Erasing Trouble Code