

COURSE TITLE (Preventative Maintenance (DEMR 1329 3&5A3)

CREDIT

3 Semester Credit Hours (3 hours lecture, 1 hour lab)

MODE OF INSTRUCTION

Face to Face

PREREQUISITE/CO-REQUISITE:

None



**LAMAR INSTITUTE
OF TECHNOLOGY**

COURSE DESCRIPTION

An introductory course designed to provide the student with basic knowledge of proper servicing practices of Diesel Engines. Content includes record keeping and condition of major systems.

COURSE OBJECTIVES

Upon completion of this course, the student will be able to

1. Apply preventative maintenance practices.
2. Perform preventative maintenance on systems.
3. Practice appropriate record keeping
4. Identify and understand principle of operation of various internal components in a diesel engine.
5. Name and describe the major components of a diesel engine electrical starting system.

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. Diesel Technology Fundamentals, Service, Repair
Author: Norman, Corinchock, Scharff
Publisher: Goodheart and Willcox Company, Inc.
ISBN # 978-1-64564-685-3, 9th edition
2. Diesel Technology Workbook Fundamentals, Service, Repair
Author: Norman, Corinchock, Scharff
Publisher: Goodheart and Willcox Company, Inc

Approved: PMIII / 8-18-2023 pm3

ISBN # 978-1-64564-686-0, 9th edition

4. Notebook and 8.5" x 11" notebook paper
5. Blue and Black ink pens

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	TOPIC	READINGS	ASSIGNMENTS
10-21	Course Introduction and Class Policies	Lecture / Handouts 10-24	Review Handouts and Class Quizzes 10-24
10-28	Engine Blocks <ul style="list-style-type: none">• Cylinder Blocks• Accessing Diesel Engine Components• Chapter Test	Chapter 5 10-31	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 5 Test 10-31
11-4	Crankshafts <ul style="list-style-type: none">• Diesel Crankshafts• Bearing Inspection• Chapter test	Chapter 6 11-7	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 6 Test 11-7
11-11	Pistons, Rings, & Rods <ul style="list-style-type: none">• Diesel Pistons• Rings and Piston Pins• Connecting Rods• Chapter test	Chapter 7 11-14	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 7 Test 11-14

11-18	Diesel Starting Systems <ul style="list-style-type: none"> • Electric Starter system Components • Air, Hydraulic and Cold Starting Aids • Chapter test 	Chapter 25 11-21	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 25 Test 11-21
11-25	Preventive Maintenance and Troubleshooting <ul style="list-style-type: none"> • Setting up PM Program • Winterizing Engines • Trouble shooting • Chapter test 	Chapters 27 11-26	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 27 Test 11-26
12-2	Course Overview <ul style="list-style-type: none"> • Lecture • Homework 	Prepare for final exam 12-4	Review semester materials 12-4

*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, and homework assignment.	45%
Test over Lecture and Chapters	30%
Outside Assignment or class Participation	5%
<u>Final Exam</u>	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 \(lit.edu\)](https://www.lit.edu/specialpopulations).

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

1. **No Cell Phone or Electronic Devices** allowed in class, except in special circumstances and it is approved by the instructor.
All cell phones must be put away in the classroom cell phone lock box.
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 a 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. Engine Cylinder Blocks
 1. Cylinder Blocks
 2. Accessing Diesel Engine Components
 3. Cylinder block Inspection

4. Cylinder Liners
- B. Crankshafts
 1. Diesel Engine Crankshafts Terminology, Lubrication
 2. Crankshaft Inspection
 3. Bearing Inspection
 4. Crankshaft installation
 5. Flywheel inspection and installation
- C. Piston, Rings, and Connecting Rods
 1. Diesel Pistons designs, Types, Cleaning, and Inspection
 2. Piston Rings designs, Types, Checking and Installation
 3. Connecting Rods designs, Types, Inspection, and Installation
 4. Assemble Installation
- D. Diesel Starting Systems
 1. Starting Systems purpose
 2. Electrical Starting System Components
 3. Electrical Starting System Testing
 4. Air Power starting Systems
 5. Hydraulic starting Systems
 6. Cold Air Start
- E. Setting up preventive maintenance program
 1. Winterizing engines
 2. Troubleshooting
 3. Primary engine checks
 4. General test procedures
 5. Storage of diesel engines