

COURSE TITLE (Preventative Maintenance (DEMR 1329 6A3)

**CREDIT**

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

**MODE OF INSTRUCTION**

Face to Face

**PREREQUISITE/CO-REQUISITE:**

None

**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: Troy Burnett

Email: [taburnett@lit.edu](mailto:taburnett@lit.edu)

Office Phone: 409 617 5751

Office Location: ITC-2 103

Office Hours: Varies Tuesday / Thursday 4:00 – 5:00 pm

**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, 9<sup>th</sup> 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, 9<sup>th</sup> 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

Week	TOPIC	READINGS	ASSIGNMENTS
1	Course Introduction and Class Policies	Lecture / Handouts	Review Handouts and Class Quizzes
2-3	Engine Blocks <ul style="list-style-type: none"><li>• Cylinder Blocks</li><li>• Accessing Diesel Engine Components</li><li>• Chapter Test</li></ul>	Chapter 5	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 5 Test
4	Crankshafts <ul style="list-style-type: none"><li>• Diesel Crankshafts</li><li>• Bearing Inspection</li><li>• Chapter test</li></ul>	Chapter 6	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 6 Test
5	Pistons, Rings, & Rods <ul style="list-style-type: none"><li>• Diesel Pistons</li><li>• Rings and Piston Pins</li><li>• Connecting Rods</li><li>• Chapter test</li></ul>	Chapter 7	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 7 Test
6	Diesel Starting Systems <ul style="list-style-type: none"><li>• Electric Starter system Components</li></ul>	Chapter 25	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 25 Test

	<ul style="list-style-type: none"> <li>• Air, Hydraulic and Cold Starting Aids</li> <li>• Chapter test</li> </ul>		
7	Preventive Maintenance and Troubleshooting <ul style="list-style-type: none"> <li>• Setting up PM Program</li> <li>• Winterizing Engines</li> <li>• Trouble shooting</li> <li>• Chapter test</li> </ul>	Chapters 27	Complete assigned Review, ASE and Workbook Questions. Class Quizzes Chapter 27 Test
8	Course Overview <ul style="list-style-type: none"> <li>• Lecture</li> <li>• Homework</li> </ul>	Prepare for final exam	Review semester materials

### 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%**

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](mailto:specialpopulations@lit.edu). You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](http://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](http://www.lit.edu). Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

### **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. 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.
13. 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**