

COURSE TITLE (Diesel Engine Testing and Repair (DEMR 1410 3A2 & 5A2)

**CREDIT**

4 Semester Credit Hours (3 hours lecture, 4 hours lab)

**MODE OF INSTRUCTION**

Face to Face

**PREREQUISITE/CO-REQUISITE:**

DEMR 1401



**LAMAR INSTITUTE  
OF TECHNOLOGY**

**COURSE DESCRIPTION**

An introduction to testing and repairing diesel engines including related systems and specialized tools.

**COURSE OBJECTIVES**

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

1. Identify and inspect diesel engine parts.
2. Properly test and measure diesel engine parts.
3. Demonstrate proper disassemble and reassemble procedures for diesel engine components.

**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 9<sup>th</sup> edition \*
2. **Diesel Technology Workbook** Fundamentals, Service, Repair  
Author: Norman, Corinchock, Scharff  
Publisher: Goodheart and Willcox Company, Inc  
ISBN # 978-1-64564-686-0 9<sup>th</sup> edition \*
3. Notebook and 8.5" x 11" notebook paper
4. Blue and Black ink pens
5. Safety glasses and suitable work clothes

Approved: PMIII / 1-08-2024

## Recommended :

### 6. In-line 71 Series Service Manual

Detroit Diesel Corporation

Dealer: Stewart and Stevenson Service, Inc.

Revision May 1994 Will provide use of book for enrolled students.

## 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 policies	Review Class Handouts and Lecture	Read and review Handouts
2	Personal and shop safety precautions Safety guideline that apply to the starting, testing, and stopping of the diesel engine	Detroit Diesel 71 series Service Manual	Review Handouts Lecture / Shop safety Test on safety
3	Roots Blowers <ul style="list-style-type: none"><li>• Purpose, design, construction, and operation principles.</li></ul>	Detroit Diesel 71 series Service Manual	Review Handouts Homework assignment Test on material
4	Fuel pumps <ul style="list-style-type: none"><li>• Purpose, design, construction, and operation principles.</li></ul>	Detroit Diesel 71 series Service Manual	Review Handouts Homework assignment Test on material
5	. Cylinder heads Purpose, design, construction, and operation principles.	Detroit Diesel 71 series Service Manual	Review Handouts Homework assignment  Test on cylinder heads
6	Centrifugal and raw water coolants pumps	Detroit Diesel 71 series Service Manual	Review Handouts Homework assignment Test on material

	<ul style="list-style-type: none"> <li>Purpose, design, construction, and operation principles.</li> </ul>		
7	Tune up and troubleshooting	Detroit Diesel 71 series Service Manual	Review Handouts Homework assignment Test over lecture
8	Review, Wrap up and Final Exam	Final Project and Shop organization	Shop organization Final Exam Lecture and Review Review Handouts End of semester

### COURSE EVALUATION

Final grades will be calculated according to the following  
Daily work, quizzes, lab and homework assignment.

**40%**

Performance Work Grade

**35%**

Outside assignment or class presentation.

**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 \(lit.edu\)](#).

## **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, 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. 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.

**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. Introduction
  - Introduction of faculty and students
  - Review Syllabus
  - Review Class Policies
  - Reviewing Student Enrollment
- B. Personal and shop safety precautions
  - 1. General safety rules
  - 2. Safety guideline that apply to the starting, testing, and stopping of the diesel engine
- C. Roots Blowers
  - 1. Purpose, design, construction, and operation principles.
  - 2. Air box requirements
  - 3. Removal, disassemble, and cleaning.
  - 4. Inspection and repairs.
  - 5. Assembly, testing, and adjusting
- D. Fuel pumps
  - 1. Purpose, design, construction, and operation principles.
  - 2. Fuel flow requirements
  - 3. Removal, disassemble, and cleaning.
  - 4. Inspection and repairs.
  - 5. Assembly, testing, and adjusting
- E. Cylinder heads
  - 1. Purpose, design, construction, and operation principles.
  - 2. Removal, disassemble, and cleaning.
  - 4. Inspection, repairs and rebuild of head components.
  - 5. Assembly, testing, and adjusting
- F. Centrifugal and raw water coolants pump
  - 1. Purpose, design, construction, and operation principles.

2. Removal, disassemble, and cleaning.
3. Inspection and repairs.
4. Assembly, testing, and adjusting