

COURSE TITLE (Diesel Engines II (DEMR 1449 6A1))

CREDIT

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

MODE OF INSTRUCTION

Face to Face

PREREQUISITE/CO-REQUISITE:

None

COURSE DESCRIPTION

An in-depth coverage of disassembly, repair, identification, evaluation, and reassembly of diesel engines.

COURSE OBJECTIVES

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

1. Identify engine components and their working relationship to the engine.
2. Evaluate engine components by inspection, testing, and/or measurement.
3. Explain orderly procedure of disassembly and reassembly of the diesel engine.
4. Explain personal and shop safety rules that must be practiced when working in the shop area while using tools and equipment.
5. Identify engine nomenclature, description, and prepare proper work order.

INSTRUCTOR CONTACT INFORMATION

Instructor: Troy Burnett

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Office Phone: 409-617-5751
409 247 5058

Office Location: ITC-2 103

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

REQUIRED TEXTBOOK AND MATERIALS

Approved: PMIII / 1-23-2023



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
 ISBN # 978-1-64564-686-0; 9th edition
3. Notebook and 8.5" x 11" notebook paper
4. Blue and Black ink pens
5. Safety glasses and suitable work clothes

Recommended :

6. **In-line 71 Series Service Manual**
 Detroit Diesel Corporation
 Dealer: Stewart and Stevenson Service, Inc.
 Revision May 1994

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 <ul style="list-style-type: none"> • Lecture • Lab: Practice 	Review Class Handouts and Lecture	Read and review Handouts
2	Personal and lab Safety orientation <ul style="list-style-type: none"> • Lecture and class • Lab: Practice and testing 	Review Class Handouts and Lecture	Handouts and equipment
3/4	Engine Operations	Chapter 26 71 Service Manual	Review Handouts

	<ul style="list-style-type: none"> • Lecture/ Lab: Exercises and Test • Demonstration on engine 		Complete Review, ASE and workbook questions
5/6	Identification of various engine and designed <ul style="list-style-type: none"> • Lecture on handouts 	71 service manual Filmstrips on engine	Review Handouts Home work assignment Visual identification in lab Test on material
7	Completing Job sheets and engine reports	Chapter 26	Handouts Lecture Handout Exercise Test on Material
8	Preparation for engine Disassembly	71 Service Manual Chapter 26 Film strips	Review Handout Lecture in Lab Exercises and Test Homework assignment
9/10	Safety precautions, organizing parts and procedures for repair.	71 Service Manual Chapter 26	Review Handouts Lecture Test over lecture Lab demonstration
11/12/13	Engine Disassembly	71 Service Manual Film strips	Review Handouts Lecture Exercises and Test Homework assignment
14	Lubrication Systems principal	71 Service Manual Film strips	Handouts / Visual Aids Lecture Filmstrips Test on material Homework assignment
15	Semester shop follow up	71 Service Manual	Review Handouts Lecture / open discussion Test over semester lectures Project organization for end of semester
16	Semester shop follow up	Final Project and Shop organization	Review and Handouts Lecture and Review Final to be announced End of semester

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

Daily work, quizzes, lab and homework assignment.	35%
Performance Work Grade	35%
Attendance Test.	10%
<u>Final Exam</u>	<u>20%</u>
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.

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.

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.

- A. Shop inspection
 - 1. Shop class policy
 - 2. Grading system
 - 3. Tools and shop equipment
 - 4. Shop safety
- B. Engine operation
 - 1. Starting procedures
 - 2. Operation
 - 3. Emergency shut-downs
- C. Engine identification
 - 1. Detroit diesel
 - 2. Cummins engines
- D. Job sheets and engine reports
 - 1. Properly recording data of normal and abnormal wear
 - 2. Record improper assembly
 - 3. Justify repairs or replacement
 - 4. Determine the cause of failure
 - 5. Document all findings in report
- E. Disassembly of the diesel engine
 - 1. Preparation for disassembly
 - 2. Organize parts
 - 3. Safety precaution
 - 4. Cylinder block
 - 5. Crankshaft and main bearing removal and installation
 - 6. Piston, rings, connecting rods, and bearing removal and installation
 - 7. Cylinder liners inspection, and installation
 - 8. Camshaft, bearings, and gears inspection
 - 9. Gear train timing and installation
 - 10. Flywheel and housing
- F. Lubrication systems description, function, cleaning, inspection, and assembly
 - 1. Low pressure
 - 2. Oil type
- G. Lubrication oil filters, coolers, and oil pan installation
 - 1. Testing