Course Syllabus

DEMR 1306 (3:2:3)

Diesel Engine I

Diesel Service Technology

Industrial

Technical Education Division

Levelland

South Plains College

Spring 2026

Campus Listed as Appropriate to Class: Levelland
Course Title: Diesel Engine I
Instructor: Marie Flores
Office: #204 Auto-Diesel (Upstairs)
Phone: 806.716.2188
Email: Emflores@southplainscollege.edu
Office Hours: Monday-Friday 8:00am-3:30pm

South Plains College Improves Each Student's Life

****

1) **General Course Information:**

a) Course Description: The purpose of this course is to provide the student with an introduction to the basic principles of diesel engines and systems.

b) Course Learning Outcomes: The student will describe the history of diesel engines and diesel systems and their evolution; demonstrate knowledge of the basic principles of diesel systems and engines and how they function; and utilize precision instruments to diagnose and repair basic systems and engines.

c) Course Competencies: This course uses established industry competencies. Upon completion of this course the student must demonstrate the ability to:
   i) Describe the history and evolution of diesel engines and sub-systems.
   ii) Explain how the basic principles of diesel systems and engines can be applied to different types of diesel engine makes, configurations, and applications.
   iii) Use industry standard computers and precision equipment to diagnose and repair the basic systems and engines. iv) Locate pertinent service information on computer based manuals.

d) **Academic Integrity:** (see current college catalog for policy). Cheating or plagiarism will result in immediate disciplinary action per the college's policy.

e) SCANS and Foundation Skills: C1 through C20 and F1 through F17. A description of these SCANS skills is incorporated in this syllabus for reference.

f) Verification of Workplace Competencies: All graduating students in the diesel service technology program will have a comprehensive, exit review exam administered in order to comply with the state requirement for a "capstone learning experience".

2) **Specific Course / Instructor Requirements**:

a) Textbook and Other Materials:

i. *Medium/Heavy Duty Truck Engines, Fuel & Computerized Management Systems,* by Sean Bennett, published by Cengage Learning Inc., ISBN9780357358542; tools per provided list. These are mandatory items for your success.

ii. **Required Materials** Cengage Unlimited-Access (12 Months) ISBN: 9780357700044 Available in the bookstore, you will only need one copy for all of your Diesel courses. **As returning Seniors you should not need to purchase any books.**

b) **Attendance Policy:** (also see current college catalog). Additionally: A student that attains 3 absences will be administratively dropped from all classes. An absence will be issued when a student attends less than one half (1/2) the scheduled time, for that particular day. Three (3) tardy circumstances are equal to one absence. A tardy circumstance will also occur for the following: i) Not staying on task 1 tardy ii) Improper use of electronic devices: 1 tardy iii) Not using safety glasses in the lab or safety glasses not properly covering the eyes:

Absence iv) Unsafe lab area conditions 2X tardy

v) Not operating equipment or handling components safely vi) Not maintaining your lab area clean of spills or tripping hazarders vii) Disrupting class 2 X tardy

(1) Horse-playing
(2) Profanity
(3) Allowing other students to disrupt your lab time
(4) Using ear buds/head phones during class
(5) Any disruptive behavior viii) Sleeping in Class or Lab: 1 Absence

The inability to stay awake in class or lab is an indication that you are too tired to function safely in our environment, and you will be dismissed for safety reasons. This is considered an absence since you are not present.

c) Students are responsible for all work covered during absences from class, even in cases in which they are able to satisfy the instructor that the absence was unavoidable. When an unavoidable reason for class absence arises, such as illness, an official trip authorized by the college or an official activity, the instructor may permit the student to make up work missed. In such case, it is the student's responsibility to complete work missed within a reasonable period of time as determined by the instructor.

3) **Assignment Policy:** Assignments turned in after the assigned due date will not be accepted and will result in a zero grade for that assignment. Reasonable circumstances for a late assignment may be accepted with a penalized grade with the instructor's permission. If you are late for an exam you will not be allowed to take the exam. You will receive a zero for the exam.

4) **<u>Grading Policy/Procedure and/or methods of evaluation</u>:** Exams will be given periodically throughout the semester at the instructor's discretion. Lab assignments will be given and completed at the assigned dates. At the end of the semester, a comprehensive final exam will be given. There are three categories taken into consideration when computing the final semester grades.

   a) Classroom grades: These grades will consist of 60% Lab, Exams 20%, Quizzes & Homework 15%, Attendance 5%

   b) Tutoring – Students who do not pass their first exam will be required to attend three hours of tutoring each week until they pass their next exam. This is a course requirement and will be reflected in the course grade.

   c) Lab grades: These grades will constituent 60% of the final semester grade. Lab projects and task sheets will be completed by the assigned date. Each student must complete the assigned lab projects for the semester. In addition, there will also be lab benchmark tests throughout the semester.

   d) Point deduction from lab projects
      i) Late or not showing up for the end of semester clean-up will result in forfeit of all lab points.
      ii) Leaving a lab project partially disassembled, leaving out parts, or not turning in complete work order results in a zero on that assignment.
      iii) Damaging lab projects will result in a deducted grade for projects as follows:
      iv) Damaged, but repaired correctly -5%
      v) Damaged, required part replacement -10% vi) Damaged, not repairable -20% vii) Damaged, abandoned -100%

   e) Outline of Engine Rebuild grading Policy
      i) Engine not started -100 %
      ii) Minor leak (oil, coolant, or fuel) per infraction
         (1) Less than one drop per 1 minute -30% iii) Major leak (oil, coolant, or fuel) per infraction
         (1) More than one drop per 1 minute -100% iv)
      Missing bolts per infraction -10% v) Knocks of any type
      -100% vi) Brackets missing or not fastened per
      infraction -10 % vii) Out of specification oil pressure
      (high or low) -100% viii) Improper work order per
      infraction -5%
      ix) Improper engine function per fault -30%

   f) **Note**: When you apply for a signature on a project, you will be randomly, verbally, quizzed on your knowledge of the project, procedures, ect. Inability to answer questions will result in an incomplete until you comply with the research assigned at that moment.

g) Grade Levels: There are four levels of attainable grades in the diesel technology program. The levels are A - (90 and above); B - (80-89); C - (70-79); F - (69 and below). This grading policy follows industry standards used in certification testing.

5) **Course Outline**
   a) Development of the Diesel Engine
   b) Diesel Engine Operating Fundamentals
   c) Understanding Horsepower and Related Terms
   d) Combustion Systems (6 Hazardous Material)
   Students will come in contact with chemicals and other materials, which are classified as HAZARDOUS MATERIAL by EPA and/or TCEQ. Examples of these materials include used engine oil, hydraulic fluid, antifreeze, batteries, various light bulbs and other items. Material Safety Data (MSD) are located in the areas affected.

Syllabus Statements can be found here:
https://www.southplainscollege.edu/syllabusstatements/

DST Classroom and Lab Area Rules

1. Always follow safety rules. They are for your protection.

2. Personal Protection Equipment: Safety glasses will be properly worn at all times. Acceptable lens colors: clear, yellow

colored lenses. Mirrored or dark lenses will be permitted for outside work only. Sunglasses will not be allowed indoors

or outdoors. All safety glasses must be “ANSI Z-87-1” or better certified. Safety toe footwear are required and will

be worn at all times. Non-compliance will result in dismissal for the day with an absence.

3. Service bay doors will be either fully raised or lowered. Not left partially open.

4. No tobacco products are allowed in campus buildings, and smoking must not be done within 25 feet of the building, per campus policy. This policy includes vaping.

5. No shorts to be worn in the lab areas. Clothing should be well-fitting and appropriate for work with proper PPE.

6. No student parking is allowed inside the south fenced-in area.

7. The DST program adheres to the South Plains College zero tolerance policy for controlled substances. Should an instructor suspect a student is under the influence of drugs or alcohol while on campus, they will remove the student
from class and/or lab and the appropriate disciplinary measures will be enforced.

8. No electronic devices, including cell phones, smart watches, or laptops can result in your dismissal for the day with an absence.

9. You are required to have your own tools to be able to participate in class.

10. Do not store South Plains College tools, equipment or project parts in your toolbox. If you do put SPC property in your box, we can and will use any means necessary to open your box if you are not present. While your box is present in our facility, it is subject to search at any time at an instructor's discretion. We are not responsible for any damage or losses
that may occur due to this policy. You are welcome to register a spare key with your instructor for the semester to avoid such situations.

11. In accordance with Texas Commission on Environment Quality (TCEQ), there are to be no open or unlabeled containers in the lab or classroom areas. Only small quantities may be held in open containers, which must be labelled, and currently in use.

12. All SPC property, including equipment keys and tools, must be put away at class clean up. You are responsible for putting away all your personal tools, sorting equipment neatly and disposing of all trash daily.

13. When lifting/moving materials, equipment, etc with the forklift, gantry or engine lifts must be safely secured and use of

a safety chain is required where applicable.

14. Maintain awareness of your surroundings and your peers in the lab.

15. Maintain a clean workspace, clean up spills, debris, etc. immediately, and clean up your workspace and tools daily.

16. Do not drive bearings with hard steel tools.

17. Do not spin bearings or turbochargers with compressed air.

18. Intentional destruction of school property will result in immediate dismissal from the program.

19. You will be around chemicals, electricity and moving equipment, exercise caution and self-awareness in your actions and daily assignments.

20. No music during lectures and lab, this rule applies to all forms of music or using audio devices during lectures and laboratory sessions. Including personal headphones/earbuds, speakers, and any audio output that may disrupt the learning experience of others.

21. The use of profanity, vulgar language, and any inappropriate language that may offend others is strictly prohibited. Failure to apply will result in consequences.

Thank you for your cooperation in creating an effective learning environment

SCANS COMPETENCIES

C-1 **TIME**--Selects goal--relevant activities, ranks them, allocates time, and prepares and follows schedules.

C-2 **MONEY**--Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives

C-3 **MATERIALS & FACILITIES**-Acquires, stores, allocates, and uses materials or space efficiently.

C-4 **HUMAN RESOURCES**--Assesses skills and distributes work accordingly, evaluates performances and provides feedback.

INFORMATION--Acquires and Uses Information C-5

Acquires and evaluates information.

C-6 Organizes and maintains information.

C-7 Interprets and communicates information. C-8

Uses computers to Process information.

INTERPERSONAL--Works With Others

C-9 Participates as members of a team and contributes to group effort.

C-10 Teaches others new skills.

C-11 Serves clients/customers--works to satisfy customer's expectations.

C-12 Exercises leadership--communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.

C-13 Negotiates-Works toward agreements involving exchanges of resources resolves divergent interests.

C-14 Works with Diversity-Works well with men and women from diverse backgrounds.

SYSTEMS--Understands Complex Interrelationships

C-15 Understands Systems--Knows how social, organizational, and technological systems work and operates effectively with them

C-16 Monitors and Correct Performance-Distinguishes trends, predicts impacts on system operations, diagnoses systems' performance and corrects malfunctions.

C-17 Improves or Designs Systems-Suggests modifications to existing systems and develops new or alternative systems to improve performance.

TECHNOLOGY--Works with a variety of technologies

C-18 Selects Technology--Chooses procedures, tools, or equipment including computers and related technologies.

C-19 Applies Technology to Task-Understands overall intent and proper procedures for setup and operation of equipment.

C-20 Maintains and Troubleshoots Equipment-Prevents, identifies, or solves problems with equipment, including computers and other technologies.

FOUNDATION SKILLS

BASIC SKILLS--Reads, writes, performs arithmetic and mathematical operations, listens and speaks

F-1 Reading--locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.
F-2 Writing-Communicates thoughts, ideas, information and messages in writing, and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.
F-3 Arithmetic--Performs basic computations; uses basic numerical concepts such as whole numbers, etc.
F-4 Mathematics--Approaches practical problems by choosing appropriately from a variety of mathematical techniques.
F-5 Listening--Receives, attends to, interprets, and responds to verbal messages and other cues.
F-6 Speaking--Organizes ideas and communicates orally.

THINKING SKILLS--Thinks creatively, makes decisions, solves problems, visualizes, and knows how to learn and reason

F-7 Creative Thinking--Generates new ideas.
F-8 Decision-Making--Specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative.
F-9 Problem Solving--Recognizes problems and devises and implements plan of action. F-10 Seeing Things in the Mind's Eye--Organizes and processes symbols, pictures, graphs, objects, and other information.
F-11 Knowing How to Learn--Uses efficient learning techniques to acquire and apply new knowledge and skills.
F-12 Reasoning--Discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.

PERSONAL QUALITIES--Displays responsibility, self-esteem, sociability, self management, integrity and honesty

F-13 Responsibility--Exerts a high level of effort and preservers towards goal attainment.
F-14 Self-Esteem--Believes in own self-worth and maintains a positive view of self. F-15 Sociability--Demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings.
F-16 Self-Management--Assesses self accurately, sets personal goals, monitors progress, and exhibits self-control.
F-17 Integrity/Honesty--Chooses ethical courses of action.