DTEC 110 Powertrains II
Mr. Cross

Credits: 4 credit hours
Lecture: 3 hours
- Mon/Wed/Fri 10:00-10:50 Marshall 117
Lab: 2 hours
- Lab 02L Thurs 2:00-3:50 Marshall 117
- Lab 01L Thurs 6:00-7:50 Marshall 117

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Course Description:
This course will cover the operation, diagnosis, and repair of chassis components on Heavy Equipment and Over-The-Road tractors. Topics addressed will include: Chassis systems, alignment, springs, shocks and other suspension components, tires, wheels, and braking systems including ABS and brake chamber servicing.

Course Objectives:
Competencies to be developed:
1. To be able to identify the main types of steering systems and steering geometry
2. To understand how various brake system components work together
3. To fully understand the various safety issues related to braking components
4. To understand the various suspension systems today
5. To comprehend frame components and how they are utilized in medium and heavy truck systems
6. To gain a basic knowledge of truck alignment and alignment issues
7. To gain an understanding of new technology used in the medium and heavy duty truck market
8. To be able to perform basic failure analysis to help prevent future failures

Course Materials:
2. Course handouts given in class and/or available at the instructor’s web page.
Student Responsibilities:
1. To read the course syllabus and to ask questions if the material is unclear.
2. To attend all classes and labs.
3. To attend scheduled lab unless previous arrangements are made with the instructor.
4. To make up any and all class work covered during their absence.
5. To complete on time all work including reading, homework, lab write-ups and the term project. Student’s work will show careful, neat, complete and individual effort.

Lab:
1. A lab write-up will be due after each lab. The lab is due at the beginning of the following week’s lab.
2. Students are required to attend their scheduled lab unless previous arrangements have been made. Due to the fact that labs are balanced, every effort should be made to attend the scheduled lab.
3. Safety is the most important aspect of the lab work. If a student performs in an unsafe manner, he will first receive a verbal warning. The second instance the student will receive a written warning and the third instance will mean removal from the lab and course.

Attendance Policy:
• All attendance policies as listed below from the Student Handbook will be followed.
• If a student doesn’t attend a class, then he/she cannot participate.
• The missing of four classes will likely lead to removal from the class.

Excerpts from the student handbook regarding attendance:
   a. Students are expected to attend all scheduled classes and laboratories. However, special circumstances such as illness, religious holidays, travel difficulties, family emergencies and participation in college sponsored events may make certain absences unavoidable. In such instances, students should notify instructors of these special circumstances.
   b. Although regular class attendance will not guarantee passing grades, irregular attendance will usually have an adverse effect upon them. Because final student evaluation is based upon measurable academic achievement, however, instructors will not lower final grades solely on the basis of attendance.

Testing Accommodations:
If you wish to use test accommodations for an exam or need extra help to be successful in the course please speak with me.

Plagiarism:
• The Student Handbook’s policy on plagiarism will be strictly followed. Students that plagiarize can receive an F for the entire course.

The Code of Academic Honesty from the Student Handbook
Academic honesty promotes continued academic and occupational success. Maintenance of academic honesty and quality education is the responsibility of both faculty and students. Any written assignment (including all electronic media) submitted by a student must be original authorship. Representation of another’s work as his/her own shall constitute plagiarism. Any charge of
plagiarism must be substantiated by a direct correlation in wording and organization between the
original and plagiarized copy.
Any examinations must be taken according to prescribed procedure, as determined by the faculty
member in charge. Any form of unauthorized written material used by a student or evident on
his/her person during or directly following an examination shall be deemed a violation of academic
honesty. Unauthorized correspondence between students during any examination or preparation of
submitted work, which cannot be substantiated by physical proof or eye witness verification, shall be
considered an infraction of the code and shall subject involved parties to corrective procedures.

Grading:
15% Participation
35% Lab work
30% Homework, Quizzes, Tests and the Final Exam
20% Air Brake Project

Course Topics:
1. Steering Systems  Chapter 16
2. Suspension Systems  Chapter 20
3. Truck Brake Systems  Chapter 18
5. ABS & EBS  Handout
6. Air Brake Servicing
7. Vehicle Cassis Frame  Chapter 21
8. Heavy Duty Truck Trailers  Handout
9. 5th Wheels & Coupling Systems  Chapter 22
10. Wheels & Tires  Chapter 17

Lab Topics:
1. Lab Safety & Computer Use
2. Steering Component Inspection
3. Steering Geometry Lab
4. Frame & Axle Alignment
5. Computerized Frame & Axle Alignment
6. Air Brake Supply Circuits Lab
7. Foundation Brake Components Lab
8. Truck Brake Lab(s)
9. RoadRanger Training Session
10. Electronic Transmission Diagnostics
11. Final Project Work