DTEC 125 DIESEL ELECTRICAL SYSTEMS
4 CREDITS (3 LECTURE HOURS, 2 LABORATORY HOURS)

LECTURE - 106 Bailey Hall Monday, Wednesday, Friday 10:00 - 10:50

LABORATORY – 115 Marshall Hall
01L Monday 1:00-2:50
02L Monday 3:00-4:50
03L Tuesday 2:00-3:50
04L Tuesday 4:00-5:50

Office Hours: Monday: 11:00-11:50 Tuesday 11:00-11:50 Thursday 11:00-11:50 & 3:00-4:50

Office: 136 Marshall Hall
Office phone: 684-6728
Email: crossrr@morrisville.edu
Web page: http://people.morrisville.edu/~crossrr

TEXTS - Medium/Heavy Duty Truck Electricity and Electronics (Classroom and Shop Manual) by Sulev Oun.

TOOLS – Extech 470 or equivalent multimeter. Please attend first class to get sample specifications.

COURSE DESCRIPTION – An introduction to the fundamentals of electricity and their application in Diesel engines and equipment. Basic theory of AC and DC systems used for charging, starting, lighting, and accessory circuits. Lecture will emphasize understanding of common circuit configurations and sample wiring schematics. Lab will emphasize testing of components, troubleshooting circuits, and common repair techniques. 4 credits (3 hours lecture, 2 hour lab), fall semester

COURSE OUTCOMES

At the completion of this course students will:

1. Practice safe habits for working around Diesel electrical systems

2. Demonstrate the ability to select proper function and range on Digital Multimeters, accurately read results, and interpret readings in context of circuit troubleshooting.
3. Be able to identify common component symbols used in electrical schematics, as well as being able to describe the function of common component sets in electrical schematics.

4. Be able to identify correct and incorrect circuit function given a circuit schematic and meter readings at various points in the circuit, and use

5. Demonstrate the ability to isolate problems and remove, test, and repair or replace faulty components in starting, charging, and lighting circuits.

**ATTENDANCE** – Students are expected to attend all scheduled classes and laboratories. If special circumstances such as illness, religious holidays, travel difficulties, family emergencies or active participation in college-sponsored events make absence unavoidable you must see me to make up the work. No student will be allowed to complete graded work after that work has been returned to others in the class. If absences place you in academic jeopardy of not passing the course, the dean of your school will be notified. All cell phones must be turned off during class and laboratory.

**ACADEMIC HONESTY** – The Code of Academic Honesty from the Student Handbook will be strictly adhered to. The first violation will result in a zero grade for the work and a letter to the student’s dean. The second violation will result in an automatic F in the course as a final grade.

**GRADING** - The laboratory based exercises will be worth 40% of your grade, and the classroom-based testing 60%. The grade breakdown is as follows:

- Lecture 15% - Homework
- 30% - Quizzes
- 15% - Final Exam Laboratory 20% -
- Lab exercises
- 20% - Lab practicals and electrical layout project

**HOMEWORK** - Is a required part of the course, and will checked each week for completeness. Each assignment will be returned the week before the quiz is given on that material. Homework turned in late but before the work has been corrected will be given ½ credit. Homework may not be turned in after the corrected work has been returned to other students. A tutor can be made available if requested. In short: You must turn in every homework assignment done to the best of your ability to succeed in this course.

**QUIZZES** - Weekly quizzes will be given during the last 10 minutes of the Friday class. No makeup quizzes will be given. If you know in advance that you will be absent, see me to take the quiz beforehand.

**FINAL EXAM** - The Final Exams will be comprehensive and given during the Final Exam period.

**LABORATORY** - Each week there will be a lab exercise which must be completed properly to receive credit.

**TOPICAL OUTLINE** – The following is a detailed outline of the class activities for the semester. Please pay close attention to the reading and written assignments.
<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
<th>Reading Assignment</th>
<th>Written Assignment</th>
</tr>
</thead>
</table>
| 1    | Safety       | Chapter 1 Class Manual  
Chapter 1 Shop Manual | Questions SA 3,6-10 FITB 1-10 ASE 1-10  
Questions ASE 1-10 |
| 2    | Basic Theory | Chapter 2 Class Manual | Questions SA 1,4-10 Questions FITB 1-6,9-10, ASE 1-8 |
| 3    | Resistors and Ohm’s law | Chapter 10 (Handout)  
Chapter 11 (Handout) | Review Question 5 Review Questions 1-4, Problems 1-6 |
| 4    | Series circuits | Chapter 12 (Handout) | Review Questions 1-4, Problems 1-3, Critical Thinking 1-2 |
| 5    | Parallel Circuits | Chapter 13 (Handout) | Review Questions 1-4, Problems 1-3, Critical Thinking 1-2 |
| 6    | Series Parallel Circuits | Chapter 14 (Handout) | Review Questions 1-5 |
| 7    | Series Parallel Circuits | Chapter 14 (Handout) | Problems 1-4, Critical Thinking 1 |
| 8    | Electrical Components | Chapter 3 Class Manual | Questions SA 1-4,6-10, FITB 1-10  
Questions ASE 1,3,5-10 |
| 9    | Wiring systems and Diagrams | Chapter 4 Class Manual | Questions SA 1-10, FITB 1-10, ASE 1-10 |
| 10   | Truck and Trailer wiring | Chapter 8 Class Manual | Questions SA 1-10, FITB 1-10, ASE 1-10 |
| 11   | Instrumentation and Truck Electrical Accessories | Chapter 9 Class Manual  
Chapter 10 Class Manual | Questions SA 4,8,9 FITB 4,5,6,10 ASE 6,8  
Questions SA 1,3-9, FITB 1-10, ASE 1-10 |
| 12   | Batteries | Chapter 5 Class Manual | Questions SA 1-10, FITB 1-10, ASE 1-10 |
| 13   | Starting Systems | Chapter 6 Class Manual | Questions SA 1-10, FITB 1-10, ASE 1-10 |
| 14   | Starting Systems | Chapter 7 Class Manual | Questions SA 1-10, FITB 1-10, ASE 1-10 |
| 15   | Charging Systems |  |  |
| 16   | Charging Systems |  |  |