  
**COURSE # DMT 1520**

Electronic Controls & Computerized Engine

Diagnostics\*

**Instructor**

**Instructor:**

**Phone:**

**Email:**

**Office Hours:**

**Course**

## **Course Objectives**

Upon successful completion of this class students should be able to; demonstrate an understanding of lighting and instrumentation systems. Demonstrate factory approved procedures for troubleshooting and repair of electronic engines. Demonstrate proper use of electronic diagnostic equipment. Show proper use of service manuals and troubleshooting guides. Demonstrate a basic knowledge of engine computer systems and sensors. Demonstrate current differences in hardware and operation of Detroit Diesel, Caterpillar, and Cummins engines. Highlight the use of tools and diagnostic equipment for component and system testing. ***Emphasize proper safety in all service/repair work.*** Demonstrate basic proficiency in applying theoretical concepts to assigned lab tasks.

## **Student’s rights and responsibilities code (not inclusive)**

Each student is expected to maintain academic ethics and honesty in all its forms, including but not limited to, cheating, plagiarism and harassment outlined below;

1. *Cheating* is the act of using or attempting to use or providing others with unauthorized information, materials or study aids in academic work. Cheating includes, but is not limited to, passing examination answers to or taking examinations for someone else, or preparing or copying other’s academic work.

1. *Plagiarism*is the act of appropriating any other person’s or group’s ideas or work( written, computerized, artistic, etc.) or portions thereof and passing them off as the product of one’s own work in any academic exercise or study.

1. *Harassment*in any form will not be tolerated. Infractions will result in disciplinary actions as defined by the university.

## **Attention Students with disabilities**

If you have a disability which may impair your ability to successfully complete this course, please contact the accessibilities services office, 863-8747, BU 146, Academic accommodations are granted for all students who have qualified disabilities. All services are coordinated with the Accessibility Services Office.

## **Cell Phones and other electronics devices**

In a word, **NO** cell phones including absolutely no text messaging. Up to 100 points off your total grade will be assessed for infraction of this policy. In the case of any special circumstances or emergency situations that may arise please communicate this to the teacher beforehand. Use of a laptop or other electronic note taking device is permitted until the device becomes a distraction because of game playing or web browsing or any other reason other than note taking or class subject enhancement. At that time the use of said device(s) will no longer be allowed. For any other electronic device not specifically mentioned here that is deemed necessary by a student for learning purposes must be explained to the teacher beforehand so that the proper teaching atmosphere can be maintained. Your cooperation in this is greatly appreciated.

## **Shop Grading Criteria**

* Punctuality 5%
* Attendance\*\* 15%
* Safety/Shop Rules/Work Ethics 10%
* Task list 30%
* Lab final Exam 40%

## **Punctuality (Pts. Based on # of days in the block)**

All students will be required to clock in and out on time according to the schedule outlined in the Theory/Shop classes. Points are lost for late times in and/or early times out. Also do not punch in then leave. Coming thirty minutes late or later constitutes an absence. Every student will need to write a brief summary of the shop tasks worked on for that day in the space provided on the time card.

## **Grading scale for Punctuality**

|  |  |
| --- | --- |
| 0 to 1 Days Late = No Penalty | 2-5 Days Late = 1 point lost/day |
| 6-10 Days Late = 2 points lost/day | 11+ Days Late = 4 points lost/day until points balance reaches 0 |

## **Attendance (Pts. Based on # of days in the block)**

Attendance will be taken from the time cards. Each student will be required to clock in and out for both lab as well as for theory. **No student is allowed to clock in or out for any other student.** If a student leaves class early without making prior arrangements with the instructor, he/she will be marked absent or tardy for the day depending upon the severity. Do not write in times. \*\*Any student with 6 or more unexcused absences will not pass this class.

## **Grading scale for Attendance**

|  |  |
| --- | --- |
| 0-1 Days Absent = No Penalty | 2-3 Days Absent = 2 points lost/day |
| 4-5 Days Absent = 5 points lost/day | 6+ Days Absent = 10 points lost/day until points balance reaches 0 |

## **Safety/Shop Rules/Work Ethic (100 pts)**

1. Dependability, works every day, follows directions, isn’t idle
2. Cleans up personal work area
3. Works well with others, carries fair share of load
4. Honest with mistakes and care of tools, etc.
5. Wears safety glasses, no exceptions. ***Safety Glasses infractions in this class will be penalized @ 5x the scale***. If all safety points are used attendance and/or task points will be deducted. After the third infraction the student will asked to leave the shop.
6. Wears designated shop uniform
7. Follows written and verbal safety rules
8. Assists in ‘Shop Clean Up’ as outlined below;

***Shop Clean Up:***

* + *Garbage disposed of properly from work areas (daily) i.e.* ❖ *Benches cleaned and all trash picked up and discarded* ❖ *Dirty shop towels, pop cans, candy wrappers etc.*
  + *Garbage cans emptied (weekly).*
  + *Floors swept and cleaned (weekly) all spills cleaned up (immediately).* ✓ *Tools, hoses, all equipment returned to their proper place (daily).*

➢ *All students are responsible to help with cleanup* ***no one is exempt***

**Grading scale for Safety/Shop Rules/Work Ethic**

Each factor listed above will be deducted @ a rate of one point X the # of infractions, unless otherwise specified.

**Task Lists** (~300 pts.)**:**

Most assigned tasks will be given out in paper form on a daily and/or weekly basis. The student is responsible for their paper copy until the due date that they are handed in. A written shop report by each student will be included with every task. Live projects may be incorporated when possible and where appropriate. Some tasks will be completed verbally or through demonstration and the completion date will be that day. Each task will have its own point’s value and is based on the following grading criteria:

**0 pct. Did not complete task.**

**~30 pct. Attempted task but did not complete.**

**~50 pct. Attempted task and completed with total instructor supervision.**

**~70 pct. Attempted task and completed with some instructor supervision.**

**~80 pct. Attempted task and completed with very little instructor supervision. ~100 pct. Attempted task and completed without any instructor supervision.**

**Lab Final** (~400 pts.)**:**

Lab final stations will be administered throughout the block. Each station will allow each student to demonstrate their hands on skills and knowledge in the areas that have been covered during the lab class. The Lab Final station dates/times will be announced over the course of the block.

**Shop Breaks:**

You have two ten minute breaks; please do not abuse the privilege. Abuse will result in points lost from the punctuality grade and/or from the attendance grade as outlined for each. Additional breaks not approved by the instructor will also result in lost points under the same criteria.

**Theory Grading Criteria**

* Tests 40%
* Class Assignments 35%
* Quizzes/Attendance\*\* 25%

***Tests:***

Test will be taken in class upon completion of a specified number of chapters covered. Because testing will be done in class, you must be there on the day of the test, or have made ***prior*** arrangements to take the test at a different time because of extenuating circumstances. If not and you miss the test *you will not be allowed to make up the test*!!

***Class Assignments***:

Assignments will be posted on ‘Canvas’. All assignments will be submitted through ‘Canvas’. Assignments will be turned in on time in order to avoid point’s reduction. Point value will be reduced by 10% for each day late to a total of 3 days late after 3 days assignment will not be accepted.

***Attendance:***

Attendance will be taken from the time cards. Each student will be required to clock in and out for both lab as well as for theory. **No student is allowed to clock in or out for any other student.** If a student leaves class early without making prior arrangements with the instructor, he/she will be marked absent or tardy for the day depending upon the severity. Do not write in times. \*\*Any student with 6 or more unexcused absences will not pass this class. **Grading scale for Attendance;**

|  |  |
| --- | --- |
| 0-1 Days Absent = No Penalty | 2-3 Days Absent = 2 points lost/day |
| 4-5 Days Absent = 5 points lost/day | 6+ Days Absent = 10 points lost/day until points balance reaches 0 |

***Quizzes:***

Up to four quizzes a week will be given during theory. The quiz will consist of 1-5 questions based on material covered in the previous lecture and/or previous reading assignment. There is no make up for missed quizzes.

At the end of the block, all points will be totaled and converted to a percentage score based on the total points possible. Your course grade will be determined by your over-all percentage score according to the following scale:

A = 94-100% C = 73-76%

A- = 90-93% C- = 70-72% B+ = 87-89% D+ = 67-69%

B = 83-86% D = 63-66%

B- = 80-82% D- = 60-62%

C+ = 77-79% E = 59% and below

Scores for the above criteria’s are posted on ‘Canvas’ ordinarily within a week of their completion, with the exception of the ‘Oral Presentation’. Hence any student will be able to see a current running grade throughout the block.

***Other:***

Maintaining a classroom atmosphere conducive toward learning is the responsibility of each student. This includes but is not limited to repeated interruptions for such things as the teachers’ lecture, another student already asking a question, a students’ presentation, interrupting if coming in late, sleeping in class, abuse of break times. Infractions will result in up to 10 points lost per day. Please help with these considerations.

## **Resources**

In addition to the main text book listed below, lesson material will be posted on Canvas and some handouts will be given. Note taking is highly encouraged and is the responsibility of each student.

**Text for DMT 1510/151L: Cengage Electricity & Electronics (ISBN-13: 978-1-133-94980-**

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# Tentative Outline (subject to change)

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Subject** | **Text**  **Reading assignment** | **Assignments Due as announced** |
| **1** | **Lighting**  **Systems/Instrumentation** | **Chpts. 9, 12**  **Supplement/Handout** | **Questions as assigned** |
| **2** | **Lighting**  **Systems/Instrumentation** | **Chpts. 9, 12**  **Supplement/Handout** | **Questions as assigned** |
| **3** | **Sensors/BCM/On-Board Networks/Diagnostics** | **Chpts. 11, 13**  **Supplement/Handout** | **Questions as assigned** |

\*\*\*Any grammatical, vernacular or other misrepresentation whether in written or pictorial form of this text, is not the responsibility of the teacher. Discrepancies will be handled on an as needed basis.