AUMT1307.23104
Automotive Electrical Systems

Course Description

Prerequisite: AUMT 1305 or concurrent enrollment in AUMT 1305. An overview of automotive electrical systems including topics in operational theory, testing, diagnosis, and repair of batteries, charging and starting systems, and electrical accessories. Emphasis on electrical schematic diagrams and service manuals. May be taught manufacturer specific.

Course Focus

This course includes a substantial amount of hands-on learning activities, which cannot be rescheduled. Regular attendance is mandatory for successful completion of the course.

Text and References

Automotive Technology Principles, Diagnosis and Service 5th Edition: James D. Halderman
Automotive Laboratory Exercises: Donald W. Jones
Selected Manufacturer Specific Materials/Publications
Selected Internet and Online Resources (Melior Instructor ID: 634ih2b8um)
Class Website - http://myautoclass.com

Course Goals

The following list of course goals will be addressed in the course. Goals marked with a * must be completed to pass the course.

1. define electricity
2. define voltage
3. define amperage
4. define resistance
5. explain Ohm's law
6. demonstrate digital meter operation
7. measure voltage
8. measure current flow
9. measure resistance
10. measure voltage drop
11. complete online Circuits & Meters I course with a score of 70% or greater*
12. explain series circuit operation
13. assemble series circuit
14. explain parallel circuit operation
15. assemble parallel circuit
16. explain series/parallel circuit operation
17. explain common electrical circuit failures
18. define common electrical circuit components
19. explain circuit control device operation
20. explain circuit protection device operation
21. explain diode operation
22. explain transistor operation
23. check switch operation
24. check relay operation
25. identify common electrical schematic symbols
26. interpret electrical wiring diagrams
27. complete online Circuits & Meters II course with a score of 70% or greater*
28. locate necessary service manual information
29. apply necessary service manual information
30. explain electrical diagnostic procedures
31. repair common wiring problems
32. demonstrate starting charging system analyzer operation
33. explain battery operation
34. analyze battery condition
35. measure parasitic draw
36. explain charging system operation
37. analyze charging system performance
38. rebuild alternator
39. explain starting system operation
40. analyze starting system performance
41. complete online AST: Batteries, Starting and Charging course with a score of 70% or greater*
42. explain lighting systems operation
43. explain selected electrical accessory system operation
44. diagnose charging system failure
45. diagnose starting system failure
46. diagnose open electrical circuits
47. diagnose shorted electrical circuits

Student Learning Outcomes

Upon successful completion of this course the student will be able to:

- Identify and explain the operation of high current automotive electrical system components
- Properly utilize common electrical diagnostic equipment on high current automotive electrical systems
- Analyze and explain the operation of high current automotive electrical circuits
- Troubleshoot and service high current automotive electrical system concerns in accordance with industry guidelines

Course Evaluation

Final Grade is composed of:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weightage</th>
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<tbody>
<tr>
<td>Attendance and Participation</td>
<td>20%</td>
</tr>
<tr>
<td>Lab Grade</td>
<td>20%</td>
</tr>
<tr>
<td>Quizzes and Homework</td>
<td>20%</td>
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<tr>
<td>Exams (written and/or practical)</td>
<td>20%</td>
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<tr>
<td>Final Exam (written and/or practical)</td>
<td>20%</td>
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</tbody>
</table>

Final grade will be of letter type:

- A = 90 to 100 points
- B = 80 to 89 points
- C = 70 to 79 points
- F = Below 70 points
- I = Incomplete
Financial Aid Statement

Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate after the drop date are also subject to this policy.

Receiving Your Grades

The college will not mail end-of-semester grades to you. To receive your grades use the following directions:

1. Go to the Dallas County Community College website (http://www.dcccd.edu)
2. Next, click on eConnect at the top of the page.
3. Now click on Credit student menu
4. Next click on My Personal Information (this will expand the menu)
5. Now click on My Grades
6. Enter your seven digit student ID (not your social security #)
7. Enter your password or if it is your first time to use the system enter your date of birth. (Example: Feb 16, 1965 = 021665)
8. Now select the term you wish to review
9. Next, select the grade type (CR-Credit Grades)
10. Click on submit, your grade(s) should then be displayed on your screen

Stop Before You Drop

For students who enrolled in college level courses for the first time beginning in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops

Additional Title 9 Information

http://www.brookhavencollege.edu/employees/faculty/Documents/BCSyllabus_Addendum.pdf
<table>
<thead>
<tr>
<th>Date</th>
<th>Reading and Assignments</th>
<th>Lab/Lecture</th>
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</thead>
<tbody>
<tr>
<td>Monday 3/20</td>
<td>Lab Manual: Grey Pages</td>
<td>Introduction</td>
</tr>
<tr>
<td>Tuesday 3/21</td>
<td></td>
<td>Basic Electricity</td>
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<tr>
<td>Wednesday 3/22</td>
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<td>DVOM's</td>
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<tr>
<td>Thursday 3/23</td>
<td></td>
<td>Series Circuits Lab</td>
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<tr>
<td>Friday 3/24</td>
<td><strong>Today's Class Electrical Circuits and Meters 1 Course due Monday at 10:00 AM</strong></td>
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<tr>
<td>Monday 3/27</td>
<td>Lab Manual: Blue Pages Chapters 39 through 42</td>
<td>Parallel Circuits Lab</td>
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<tr>
<td>Tuesday 3/28</td>
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<td>Electrical Components</td>
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<tr>
<td>Wednesday 3/29</td>
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<td>Electrical Components Lab</td>
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<tr>
<td>Thursday 3/30</td>
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<td>Exam One</td>
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<tr>
<td>Friday 3/31</td>
<td><strong>Today's Class Electrical Circuits and Meters 2 Course due Monday at 10:00 AM</strong></td>
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<tr>
<td>Monday 4/3</td>
<td>Lab Manual: Green Pages Chapters 43 through 47</td>
<td>Electrical Components Lab</td>
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<td>Tuesday 4/4</td>
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<td>Wiring Diagrams</td>
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<td>Wednesday 4/5</td>
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<td>Batteries, Charging and Starting Systems</td>
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<td>Thursday 4/6</td>
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<td>Exam Two - Hands On</td>
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<td>Friday 4/7</td>
<td><strong>Today's Class Batteries, Starting and Charging Course due Monday at 10:00 AM</strong></td>
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<tr>
<td>Monday 4/10</td>
<td>Textbook: Chapters 50 through 55</td>
<td>Batteries, Charging and Starting Systems</td>
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<td>Tuesday 4/11</td>
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<td>Batteries, Charging and Starting Systems Lab</td>
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<td>Wednesday 4/12</td>
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<td>Paperwork and Review</td>
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<tr>
<td>Thursday 4/13</td>
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<td>Final Exam</td>
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