COURSE SYLLABUS  5-22-08

5 Credits, 4 Class Hours, 2 Lab Hours, 1 Problem-Solving Lab Hour

Course Description and Objectives: This course presents an introduction to the basic principles of direct and alternating current circuits. At course termination, a student should be able to, among other things:

- Describe the fundamental concepts behind electronics, such as derived units, work, energy, and energy conservation laws
- Perform analysis of circuits containing linear passive components with DC and AC sources
- Be a proficient user of measuring instruments
- Explain about accuracy, precision, significant digits and measurement units

Pre-requisites: MAT 1175 or equivalent, or higher
Co-requisites: EMT 1150L
ISBN: 0-13-087565-1
References: Basic Electronics 9th Edition by Grob and Schultz, Publisher: Glencoe

Course Coordinators: Robert Armstrong & Aparicio Carranza.
Office V623
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Email: rarmstrong@citytech.cuny.edu

Prerequisite by topic: Be able to read and draw schematics, use algebra & trigonometry, understand how to wire basic circuits.

Computer Usage: The students simulate lecture and lab assignments on the lab computers using “Circuit Maker” and “Electronic Workbench” software.

Calculus Usage: Not required
Library Usage: Students are encouraged to use the library as a supplement to lectures and textbook.

Oral and Written Communication Requirements: Students write lab reports for every experiment.

Attendance: Under CUNY mandate, attendance in EACH class is REQUIRED and attendance WILL be taken at each class meeting. You are allowed a MAXIMUM of 3 absences. If you exceed that number, you may receive a WU grade. EXCESSIVE LATENESS (more than 5 minutes) will be considered to be an absence from that class meeting.

Lab Attendance Policy: Attendance is mandatory. If you are absent more than 2 times you will fail the class. Tardiness is also a factor, so be on time for your class – 3 lateness count as an absent.
Grade:

Lecture  80%
Lab      20%

(note: dept policy states that an “F” in EMT 1150L fails you for the entire EMT 1150 Course)
The final grade will be determined as follows:

Final Exam  35%
Midterm     20%
EMT 1150L   20%
Quizzes     20%
Class Participation  5%

Homework is a great preparation for quizzes and tests, and will affect your Class Participation grade. Homework will be collected. All students will be asked questions in class and will be assigned problems to put on the board. Cell phone ringing and any other distracting behavior will affect this grade. Neither food nor drinks are allowed in class. Quizzes will be given weekly and at the beginning of class. They will cover the previous session’s lecture and homework assignment. There will NOT be any make-ups. So please, be there, and be on time.

Helpful Hints:
1) You may get assistance in the Tech Learning Center.
2) Students who are failing should consider officially withdrawing on or before the Withdrawal Date (See Below) to avoid an F or WU grade.
3) Study in groups. Studies have shown that students who study in this manner perform better in all of their classes. SO MAKE FRIENDS.
4) Do your homework and seek help immediately for any difficulties that arise. Don’t wait until the night before the work is due.
5) Don’t expect every concept to be crystal clear after a single reading. More than one reading of a section may be necessary.
6) Work through the example problems step by step before trying the related problems.
7) Review the chapter Summary and equation list. Take the multiple choice self-test.

Lecture Schedule:

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Reading Assignment</th>
<th>Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction and motivation</td>
<td>Ch1 p. 1-17</td>
<td>Get your textbook and install the accompanying software Problems: 1,3</td>
</tr>
<tr>
<td>2</td>
<td>Mathematics for Electronics:</td>
<td>Ch2 p. 22-47</td>
<td>Problems: 1a-d,3ab,5ab,ef,7ade, 14,17a,18b,19ab</td>
</tr>
</tbody>
</table>
| 3       | **Scientific and Engineering Notation, Metric Prefixes,**  
<p>| 4       | <strong>The SI System and Electronic Units, Measured Numbers, Basic Algebra Review, Graphing</strong> |                      |                                  |</p>
<table>
<thead>
<tr>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Electrical Quantities and Measurements: Conductors; Insulator; and Semiconductors, Current and the Electric Circuit, Voltage Sources, Resistance and Resistors. Basic Electrical Measurements</th>
<th>Chapter 3 p. 56-86.</th>
<th>Problems: 1,3,5,10,11</th>
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<tbody>
<tr>
<td>8</td>
<td>9</td>
<td>Ohm’s Law and Watt’s Law: Ohm’s Law, Applications of Ohm’s Law, Electrical Energy and Power, Watt’s Law, Applications of Watt’s Law, Nonlinear Resistance</td>
<td>Ch4 p. 94-119.</td>
<td>Problems: 1d,3b,5d,9bc,11b,12a, 13-15,17abc,19,21-23,26-31</td>
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<td>14</td>
<td>Mid-Semester Exam</td>
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<td>15</td>
<td>16</td>
<td>17</td>
<td>Combinational Series/Parallel Circuits: Equivalent Circuits, Analysis of Combinational Circuits, Thevenin’s Theorem, Loading Effects, Multiple Sources, Troubleshooting Combinational Circuits, Transformers</td>
<td>Ch6 p. 172-200, 205-207.</td>
<td>Ch7 p. 237-240.</td>
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<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>Alternating Current: The Sine Wave, Phasor Representation of a Sine Wave</td>
<td>Ch9 p. 290-308.</td>
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<tr>
<td>25</td>
<td>26</td>
<td>Inductors: Inductance, Types of Inductors, Series and Parallel Inductors, Inductors in DC Circuits, Inductors in AC Circuits, Applications of Inductors.</td>
<td>Ch11 p. 374-394.</td>
<td>Problems: 3,6,7,9,11,13,15,16,19, 21</td>
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<td>30</td>
<td>Final Exam</td>
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**Note:** The instructor reserves the right to modify this outline anytime.

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**Fall 2008**

Office Hours: Mon and Tues 10:45 – 11:30 AM
Thurs 8 - 10 AM & 12:30 – 1 PM

Withdrawal Date: 11-12-08

**Prepared By:** Robert Armstrong Date: 5-22-08