Circuit Analysis

Course Description
This course introduces the fundamentals of circuit analysis including the concepts of charge, voltage, resistance, current and power. Other topics include Ohm’s law, various methods of analysis, series and parallel circuits, Kirchhoff’s voltage and current laws, Thevenin and Norton Theorems, and instruments for electrical measurements.

Learning Objectives
Successful students will be able to:
- Understand and be able to analyze common direct current circuits.
- Understand and use Ohm’s law.
- Understand and use Kirchhoff’s voltage and current laws.
- Understand and use the concepts of charge, current, voltage, resistance and power.
- Apply the concepts to series, parallel and combination circuits.
- Know and apply the concepts of Norton and Thevenin equivalents, and various theorems for analysis (e.g. superposition)
- Understand and apply the concept of circuit reduction and reconstruction to determine voltages, currents and power at different locations.
- Understand the elements of AC analysis
- Apply the concepts above to AC circuits

Major Course Requirements
The prerequisite for this course is Math 2313 Calculus I

Your course grade will be determined by your performance in the homework assignments, lab experiments/exercises, quizzes, two exams, and a final exam. The distribution of points is as follows:
1. Homework Assignments--10%.
2. Lab experiments/reports--15%.
3. Quizzes--10%.
4. Two mid-term exams--40% (20% each).
5. Final exam--25%.

Grades will be assigned according to the following scale:
A: 100-90, B: 89-80, C: 79-70, D: 69-60, and F: 59-0.
Required or Recommended Readings

Course Policies

General: Attend all classes and labs. Classes begin at the scheduled time, please be prompt. Regular completion of all reading, homework, and lab experiments is essential.

The safety of students, faculty, staff and visitors to the ET laboratories is a major issue. You must follow safety procedures and use personal protective equipment as required.

Attendance: I expect students to attend class, arrive on time, and perform assigned homework and laboratories. Late work will only be accepted when a good cause exists. Homework or other assignments will be accepted only if it is submitted in class, placed in my mailbox or e-mailed to me by the due date. If you must be absent, it is your responsibility to secure assignments, etc. from the class missed.

Late work and Make-up Exams: Late work is not accepted without good cause. Make-up exams are only permitted with cause and must be arranged with 1 week prior notice. In the absence of a true emergency, no make-up exams will be allowed after an exam.

Student collaboration: I strongly encourage collaboration on homework. It will help you to understand the ideas better if you explain them to one other. The same is true of laboratories, except the reports must be done individually. When collaborating, be sure you understand the solutions—don’t simply copy.

Assignment Formats: Homework and exams should be organized and neatly presented. Circle or box the answers to each problem. Appropriate units must be included on all answers. At the top of each page of homework write your name, the course number, the assignment number, and date. Pages are to be numbered and stapled.

Extra Credit: Extra Credit questions/problems may be in some the tests and homework.

Cell phone/Electronic Device Usage: Neither cell phone nor electronic devices are allowed in the class or the laboratory. Students are required to turn off cell phones and other electronic devices before class unless you gain permission for an exception.

Academic Integrity/Plagiarism: University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in class failure.
Dropping a Class: I hope you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Friday, November 2, 2012 is the last day to drop a class with an automatic grade of “W.”

Classroom/professional behavior: Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

Grade Appeals: As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

Disabilities Accommodations: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
Exams
The first mid-term exam will be October 3rd, the second on November 7th, during scheduled class time. The final exam is comprehensive and as scheduled by the university. No makeup exams are allowed without prior permission of the instructor.

Syllabus

Tentative Course Schedule (Subject to change)

<table>
<thead>
<tr>
<th>WK</th>
<th>Week of</th>
<th>Readings</th>
<th>Topics</th>
<th>Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/20</td>
<td>Ch. 1</td>
<td>Course requirements, introduction</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8/27</td>
<td>Ch. 2</td>
<td>Voltage, Current and Resistance</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9/3</td>
<td>Ch. 3</td>
<td>Ohm’s Law, Power and Energy</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9/10</td>
<td>Ch. 4</td>
<td>Series Circuits</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9/17</td>
<td>Ch. 4</td>
<td>Series Circuits</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>9/24</td>
<td>Ch. 5</td>
<td>Parallel Circuits</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10/1</td>
<td>Ch. 5</td>
<td>Parallel Circuits</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>10/8</td>
<td>Ch 6</td>
<td>Series/Parallel Circuits</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10/15</td>
<td>Ch 6</td>
<td>Series/Parallel Circuits</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>10/22</td>
<td>Ch. 7</td>
<td>Methods of Analysis</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>10/29</td>
<td>Ch. 7</td>
<td>Theorems</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>11/5</td>
<td>Ch. 8</td>
<td>AC Impedance</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>11/12</td>
<td>Ch. 8</td>
<td>AC Circuits</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>11/19</td>
<td>Ch. 9</td>
<td>AC Circuits</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>11/26</td>
<td>Ch. 10</td>
<td>AC Circuits</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>12/3</td>
<td></td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Wed 12th</td>
<td>Wednesday, December 12th, 11:00AM</td>
<td>FINAL</td>
</tr>
</tbody>
</table>