EE 1305 Introduction to Electrical Engineering (21563)
Spring 2015
Classroom Building, Room 205
MW: 3:00 – 4:20 PM

Instructor: Dr. Benjamin C. Flores, Professor of Electrical & Computer Engineering
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Office Hours: Tuesday and Thursday 2:00 to 4:00 pm or by appointment

Catalog Course Description: An introduction to mathematical and systems concepts that form the basis for electrical engineering. Includes an introduction to circuit components, voltage and current concepts. Also included are sinusoidal signal characteristics, basic filter responses and bandwidth concepts. Co-requisite: EE 1105. Prerequisite: MATH 1411 with a grade of "C" or better, may be taken concurrently with EE 1305.


Purpose of Course: To ensure that freshmen learn electrical engineering fundamentals and develop and practice skills needed for their academic success.

Course Objectives: At the end of the semester students will have established a foundation in their understanding of:

1. Electric charge, field and potential
2. DC (purely resistive) circuit analysis
3. AC (RCL) circuit analysis
4. Boolean algebra and logic gates

In addition, students will have learned about and practiced essential written communication and team-based learning skills in order to strengthen their academic performance.

Course Organization: The course will be organized in four distinct modules in accordance with the course objectives listed above. Students will be tested at the end of each module for understanding of concepts and analysis procedures. Module 2 will include a team project. Class time will be organized into mini-lectures and problem solving exercises. Course materials will be posted regularly on Blackboard.
Attendance and Participation: Attendance to class is mandatory. Excused absences will be granted according to the rules in the University Catalog. Students with more than two weeks of cumulative unjustified absences will be dropped from the course. Students are expected to complete reading assignments ahead of class and be prepared to participate in class and workshop discussions.

Scientific Calculator: A scientific calculator is REQUIRED for this class. These include any fx-115 Casio model calculator, all HP 33s and HP 35s models (Hewlett Packard) and all TI-30X or TI-36 models (Texas Instruments). Students should bring their calculator to class daily.

Laptops: Students may bring their tablet or laptop to class to access and download class notes posted on Blackboard.

Grading: The final course grade will be based on the following:

- Notebook (5%)
- Homework (15%)
- Exams (70%)
- Team project (10%)

Students may do the following to earn extra credit for this course:

- Attend and participate in workshops (10%)
- Write a report on EE senior project presentations to earn extra credit or join a student professional organization on campus such as IEEE, SWE or SHPE (5%)

There will be no curving of grades in this course. The linear grading scale is:

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>90 – 100 %</td>
<td>A</td>
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<tr>
<td>80 – 89 %</td>
<td>B</td>
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<tr>
<td>70 – 79 %</td>
<td>C</td>
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<tr>
<td>50 – 69 %</td>
<td>D</td>
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<tr>
<td>&lt; 50 %</td>
<td>F</td>
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</tbody>
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![Figure 2. Final Grade](image)

**Notebook:** Students are required to maintain a notebook with the following items:
- Class notes and handouts
- Graded homework assignments
- Term project notes and report
- Exam study sheets
- Exam drills
- Exams

The notebook must be turned in on the day of the scheduled final examination.

**Homework:** Homework and reading assignments will be posted weekly on Wednesdays. Students must check their Blackboard accounts to download their assignments. Homework is due at the beginning of the class period on Mondays. Assignments will include:
- Textbook reading
- Paper and pencil problems
- MATLAB simulations
**Exams:** There will be four regular exams throughout the semester, one for each module. The content of the exams will be aligned with course objectives. Each exam will consist of five or six problems that will be graded separately. The average score on an exam will not be an indication of content mastery. Instead, students are expected to solve all the problems in the exam. Students who score less than 70% on any problem will have a second and only opportunity to work on a similar problem and demonstrate knowledge proficiency during the final examination period. Students who want to improve their passing score may also take the makeup with the understanding that the makeup score replaces the initial score.

![Test Problem Makeup](image)

**Weekly Workshops:** Regular attendance to workshops is expected. The workshop sessions will be run by an undergraduate peer leader and consist mainly of team-based problem solving sessions. The grade for the workshop will be determined by readiness assessment tests.

**Team Project:** Students are required to work on a design team project and write a technical report. The project description will vary from semester to semester but it will focus on dc circuit analysis. Ideally, teams will have three members each. The grade for this project will be determined by the quality of the implementation, thoroughness of the technical report, and team peer evaluation as explained below.

**Peer Evaluation of Team Members:** At the end of the team project, students will be required to evaluate their teammates. This evaluation will assess the teammates’ objective behaviors (e.g., did they show up for team meetings) and subjective impressions of their interpersonal skills (e.g., would a student be willing to work with the same peers again). This evaluation is a critical aspect of the team-based learning paradigm because it holds team members accountable to their teammates. Teammates can become valued friends and a means to success in the course if you everyone gives his or her best contribution to all team activities.
Classroom Etiquette: Part of being a professional is being on time and being prepared to do the job. This applies to your career as a student as much as it does to your future career as an engineer. Coming to class late is unprofessional and is very disruptive to the class. Everyone is expected to be in the class and prepared to participate at the scheduled start time. If a student is late to class, she or he should come in quietly and take a seat. Students may not attempt to turn in assignments or pick up handouts until class is over.

Wireless devices are allowed in the classroom. However, students are encouraged to use professional discretion with wireless devices, shutting them off, or setting them to mute or silent mode before coming to class. Students should not answer incoming calls or make outgoing calls except in an emergency. The use of text messaging or web browser features while in class is not allowed. If a student must answer the phone, he or she should leave the class discretely and return to the class once the call is finished.

Scholastic Integrity/Academic Honesty: In accordance with University regulations, scholastic dishonesty on a given assignment will be referred to the Dean of Students and may result in a zero on the assignment, an "F" in the course, or even suspension from the university. If a student needs assistance with an assignment, he or she should consult authorized sources of help. "Plagiarism" is the unattributed use of someone else's work -- a classmate's, a website's, even a teacher's from another course. For more information on Scholastic Dishonesty and/or Plagiarism, consult the Handbook of Operating Procedures: Student Affairs, which is available in the Office of Student Life.
**The Center for Accommodations and Support Services (CASS):** Students with special needs that are registered with CASS are to contact me immediately so that we can work out accommodations for your needs. CASS may be contacted at 747-5148, cass@utep.edu or go to Room 106 Union East Building.

**Final Exam Policy:** Final examinations are scheduled to be two hours, forty-five minutes in length and take place during the final examination period. It is the policy of the university not to administer a second final examination in the course. It is also university policy that students shall not have more than two final examinations in a single day. In the unlikely event that the examination schedule results in a student having three final examinations on a single day, the faculty member upon the request of the student shall reschedule the second of that student’s three examinations.

**Team-Based Learning:** This course will employ a paradigm called Team-Based Learning in order to increase the students’ preparedness for class, to strengthen their bonds with fellow EE majors, and to help insure their ability to excel in the course. The following helps to explain the rationale and mechanics of Team-Based Learning.

1) **Participation in student learning teams:** The first week of class, all students will be assigned to learning teams. These teams will be used throughout the course to enhance your learning. Student teams will complete a number of activities designed to help students learn course material and develop their critical thinking skills. Individual and team performance will be components of one’s final course grade.

2) **Class attendance and participation:** You will be participating in a number of class activities that will enrich your thinking about topics in the course. Most of these activities cannot be “made up” in the event of absence. Consequently, attendance in class is REQUIRED. Student teams will take attendance every day.

3) **You are expected to read, work problems, and reflect on the assigned materials prior to the next class.** You should compile a list of at least three questions that you will bring to class each period. The instructor will call upon class members for their questions.

4) **Class activities:** During class activities, students are expected to participate and to treat other participants with respect. Please remember that other students may have different opinions and experiences than you. Give others and their ideas the same attention and respect you expect to receive.

5) **Readiness Assessment Tests (RATs):** During workshops, the peer leaders will end the period with a short Readiness Assessment Test (RAT) that measures one’s comprehension of the course material. RATs will typically consist of 5 multiple choice questions. First, students will complete the RAT individually. Students should mark their individual answers on BOTH their Scantron sheets and their copy of the RAT so
they will have a record of their individual answers after turning in their Scantron. After all the individual RAT Scantron sheets have been collected, **learning teams will complete the same RAT.** All members of a team will receive the same score on the **Team RAT.** The average of all RAT scores will be used to calculate extra credit.