Course description: Principles of electrical circuits. DC, transient, and sinusoidal steady-state analysis. Prerequisite: MATH 1352.

- Scientific calculator (One that can compute complex numbers and solve systems of linear equations with real and complex coefficients. A TI-89 is a good choice.)  
- Multisim software (You can download a 30-day evaluation copy of MultiSim by going to the following NI webpage: http://www.ni.com/academic/multisimse.htm. Toward the bottom of the page is a link to purchase the student edition for $40. This is software that you can use in future courses including labs.)

Instructors: Dr. Jason E. Hill, Instructor  
Office: ECE Rm. 207, (check 215/216 if not there)  
E-mail: Jason.E.Hill@TTU.edu  
Availability: Office hours: after class until noon.  
Instructor (coordinator) Dr. Molly Dickens,  
Office: ECE Rm. 207, 742-3533, ext. 235  
E-mail: Molly.Dickens@TTU.edu  
Availability: Office: ECE Rm. 3533, ext. 235  
Office hours: M 5-7pm, W 5-8pm in ECE 120) Rajnish.Kumar@TTU.edu  
Tutors ($) Doug Nichols and Travis Tankersley (tutoring hours and locations TBA)

Topics: See www.depts.ttu.edu/ece → Undergraduate Programs → Undergraduate Courses → EE 3302 for the ABET course description. The allotted class time (~37 hours) will be used approximately as follows:  
1. Circuit concepts (Chap. 1, 2, & 3) – 7 hours  
2. Circuit analysis (Chap. 4) – 12 hours  
3. Op Amps (Chap. 5) – 3 hours  
4. Capacitance & Inductance (Chap. 6) – 1.5 hours  
5. Transient response (Chap. 7) – 4.5 hours  
6. AC circuit analysis & power calculations (Chap. 9, 10) – 9 hours

Homework: A list of recommended homework problems from the textbook will be given. Working and understanding these problems is crucial to understanding the material. “Fundamentals of Electrical Engineering” is just that – fundamental to all future topics in electrical engineering. If you want to become an electrical engineer, you must (like it or not), be dedicated to mastering this material. Practicing and struggling with the problems yourself is the only way to really understand the material and be able to apply the concepts to other problems. Suggestion: Homework is a great opportunity to work with other students and learn from each other! Also, the instructors, teaching assistant, tutors, and I are available and happy to help with any questions. There are many online aids to learning Circuit Theory.

Grading: Quizzes - There will be 10-12 total in-class quizzes throughout the semester. The quiz dates and subjects will be announced in class and/or via email. No early or make-up quizzes will be given. A quiz average will be calculated after discarding (at least) the two lowest scores.

Multisim assignments – There will be 4-6 circuit simulation assignments to be completed as homework using National Instruments’ Multisim software. Assignments and due dates will be given via email.

Exams – There will be two departmental evening exams (dates and times are on the attached calendar). A minimum score of 65% on each exam is required to pass the course (i.e., you should have a reasonable understanding of ALL topics.) All students must take the exams as scheduled unless there is a legitimate academic conflict – in which case, an alternate time will be scheduled.

Two “make-up” exams with topics corresponding to those of the two regular exams will be offered during the final exam time (see calendar). A student may take only one of these exams to replace his/her previous corresponding score. The optional make-up exams are a chance to make-up a low score as well as a missed exam.
All exams/quizzes are closed-book and only notes provided by the instructor will be allowed. Scientific calculators are allowed (Graphing OK, but no keyboards). Cell phones are not allowed in view during exams and, thus, cannot be used for calculations. You may be asked to show your Tech ID during exams. Dishonesty in test taking will absolutely not be tolerated. Please report any suspicion of such.

Final grades will be based on:

- 15% → quiz average
- 15% → Multisim assignment average
- 35% → Exam 1 ( ≥ 65% required)
- 35% → Exam 2 ( ≥ 65% required)

Maximum requirements for letter grades: A – 90%, B – 80%, C – 70%, D – 60%

**Attendance:** Attendance will be generally taken at each class meeting. Students are responsible for regular and punctual attendance. In the event of an excessive number of absences, I reserve the right to report a student to the Dean’s Office and the student may be dropped from the class.

**Academic Integrity:** It is the aim of the faculty of Texas Tech to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension. Academic misconduct includes, but is not limited to, the use of any unauthorized assistance (including unauthorized materials) or assisting others in taking quizzes, tests, or examinations. If academic misconduct is determined by the instructor, a failing grade will be assigned for the course and notification sent to the student’s academic dean and the Dean of Students.

**Classroom Citizenship:** All students are expected to behave in a manner conducive to learning and to minimize any disturbances to fellow students. Silence cell phones for the duration of the class. Get a drink and visit the restroom before class. If you must leave the class before the end of the session, please do so quietly. Sleeping, surfing the internet, looking at smartphones, and chatting with others are discouraged. Inappropriate behavior in the classroom will result, minimally, in a request to leave the class.

**Expected Learning Outcomes:** Upon completion of this course, students should be able to analyze linear electric circuits to determine (1) DC response, (2) transient response, and (3) sinusoidal steady-state response, including power and energy storage.

**Methods of Assessment of Learning Outcomes:**

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Assessment Methods</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>Analyze linear electric circuits to determine:</td>
<td></td>
<td></td>
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<tr>
<td>DC response;</td>
<td>Exam 1 &amp; Homework/Quizzes from Chapters 1-4</td>
<td>10/16/2013</td>
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<td>Exam 2 &amp; Homework/Quizzes from Chapters 5-6</td>
<td>11/20/2013</td>
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<tr>
<td>1'st order transient response;</td>
<td>Exam 2 &amp; Homework/Quizzes from Chapter 7</td>
<td>11/20/2013</td>
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<tr>
<td>sinusoidal steady-state response and AC power.</td>
<td>Exam 2 &amp; Homework/Quizzes from Chapters 9-10</td>
<td>11/20/2013</td>
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**Americans with Disabilities Act (ADA):** Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.