

The University of Kansas
 Electrical Engineering and Computer Science
EECS 211 Circuits I
 Fall Semester 2018

1. *General Information*

Place, Times, Credits: 2112 Learned, 9:30 - 10:50 am TR, 3 credit hours
Discussion Sessions: 5:00 - 6:50 pm M, G415 LEEP2
Co-requisite: MATH 220 and MATH 290
Texts: *Engineering Circuit Analysis, 8th Edition*
 Hayt/Kemmerly/Durbin, McGraw-Hill, 2012.
PSpice for Basic Circuit Analysis, Second Edition, Joseph G. Tront, McGraw-Hill, 2007.
Professor: David W. Petr
Office Hours: 2001C Eaton: T 2:30-3:30, W 11:30-12:30, R 2:30-3:30 or by appointment
Telephone and email: 864-8823, dwp@ku.edu
Supplemental Instructor: Rachel Chang (rjchang@ku.edu)
Circuits Experience Instructor: Lisa Zhu (lisahongzhu@ku.edu)

2. *Catalog Description*

Analysis of linear electrical circuits: Kirchoff's laws; source, resistor, capacitor and inductor models; nodal and mesh analysis; network theorems; transient analysis; Laplace transform analysis; steady-state sinusoidal analysis; computer-aided analysis.

3. *Course Objectives*

This course is designed to give sophomores in electrical and computer engineering the basic tools and techniques for analyzing linear electrical circuits and to develop student proficiency in the use of these tools and techniques.

4. *Course Schedule (subject to change)*

Topic	Meetings (75 min)
Intro, circuit variables and elements (Chapters 1 and 2)	3
Kirchoff's laws and analysis of simple networks (Chapter 3)	4
Nodal and mesh analysis (Chapter 4)	3
Op-Amps, circuit theorems and PSpice (Chapters 5 and 6)	5
Capacitors and inductors (Chapter 7)	1.5
Sinusoidal steady-state analysis (Chapter 10)	3.5
First-order transient analysis (Chapter 8)	3.5
Laplace transform circuit analysis (Chapters 9 and 15)	4.5
Exams	2
Final Exam	(Tuesday 11 December 2018, 7:30 - 10:00 am)

5. ABET Course Outcomes

Students should be able to:

- Apply Ohm's Law, Kirchoff's Current Law (KCL), and Kirchoff's Voltage Law (KVL) to analyze (determine circuit quantities for) resistive circuits.
- Apply voltage division, current division, Nodal Analysis, and Mesh Analysis techniques to analyze resistive circuits.
- Apply Superposition, Source Transforms, Thevenin/Norton equivalents, and ideal op-amp assumptions to analyze resistive circuits.
- Apply sinusoidal steady-state techniques (phasor techniques) to analyze circuits containing resistors, capacitors, inductors.
- Perform time-domain transient analysis for first-order circuits.
- Apply the Laplace Transform technique to analyze circuits containing resistors, capacitors, inductors, and general sources.
- Use PSpice to analyze circuits.

In addition to the above, this class will emphasize *checking and correcting answers*. Students should develop this important general skill as a habit early in their engineering studies. Students will practice this skill in this class using a variety of circuit analysis techniques and be tested for proficiency.

6. Course Web Site

The web site for this course (www.ittc.ku.edu/EECS/EECS_211) will contain important and interesting information and resources. It will be updated from time to time as the course progresses. Notify me if you have difficulty accessing this site. I do *not* use Blackboard for this class.

7. Policies

7.1 Grade Composition and Letter Grades

Homework	10 Course Points
Quizzes	17 Course Points
Exam 1	25 Course Points
Exam 2	25 Course Points
Final Exam	25 Course Points
Total	102 Course Points

See "Discussion Sessions" below for an opportunity for extra credit points.

The mapping from your final course score to your grade for the course will be based *to a first approximation* on the thresholds of 93 Course Points for an A, 90 Course Points for an A-, 87 for a B+, 83 for a B, 80 for a B-, etc. Note that the Course Points total to 102 instead of 100, giving you a 2 point "bonus" built into the grading scheme. This is how I handle variations in student performance due to personal circumstances, etc., rather than dropping the lowest quiz score or some other policy.

However, I reserve the right to adjust the letter grade thresholds based on the final distribution of course scores. As an example of what I mean by this, if there are several students with scores from 94 to 99 Course Points, several more with scores from 87 to 90 Course Points, and none in between, the entire second group of students would likely get the same grade, which would likely be a B+. The thresholds could also be moved down, e.g., under other circumstances I may assign an A- to a student with a score of 89 Course Points.

As an example of the calculation of grades, suppose that a student had a homework average of 86%, a quiz average of 80%, and scored 74 out of 100 (74.0%) on Exam 1, 82 out of 100 (82.0%) on Exam 2, and 100 out of 125 (80.0%) on the final. The student's course score would be 81.20 Course Points and the student would probably receive a grade of B- for the course.

7.2 Exams

All semester exams will be given on Mondays during the discussion time period (5:00 - 6:50 pm). The regular class period on the prior Thursday will be a review/problem session (see "Discussion Sessions" below). All exams are closed book. I will provide any reference information (tables, etc.) I think you may need. You will also be allowed one 8 1/2 by 11 sheet of notes (one side) for Exams 1 and 2 and three sides of 8 1/2 by 11 notes for the Final Exam. All exams are cumulative (since course material tends to build on previous material), but Exams 1 and 2 will concentrate on material not yet tested. The final exam is comprehensive (though there will be some emphasis on material not yet tested).

7.3 Quizzes

We will have a short (5-10 min) quiz every week on Thursday at the end of class. We will use an audience response system (ARS) for these quizzes. See the course web page for more information on the ARS system. The quizzes will cover recent material and are intended to give you extra incentive to keep current in your studies.

7.4 Make-Ups

Make-up exams given only if: 1) I am informed in **ADVANCE** of the exam (in person or by phone conversation, email, voice mail, message left with staff person, etc.), and 2) I deem the reason to be sufficiently meritorious (job interviews are not). If the reason is illness, I **REQUIRE** documentation of the illness from a health-care professional. This documentation can be provided after the exam.

7.5 Discussion Sessions

As a part of this class, you have enrolled in "Discussion" sessions on Monday afternoons. Except for exam days (see "Exams" above), the discussion sessions on Monday afternoons consist of two components.

One component will be a review/problem session that will usually be conducted by the Supplemental Instructor for the class. These are opportunities for you to ask questions about course material, examples, homework problems, etc. and get some problem solving practice in an informal group setting.

The other component will be an opportunity for some "hands-on" experience with electrical circuits. Other supplementary course material may also be presented. This will be somewhat like a laboratory component, except that it will not be graded, there will be no reports, and it is optional. *However*, as an incentive to participate in this circuits experience, you will receive 0.25 course points of extra credit for every one of these experiences that you fully participate in. To fully participate, you must show up on time, bring the necessary equipment and parts, stay until the session is finished, do whatever activities the group is doing that day, and have the Circuits Experience Instructor check what you have done. Awarding of this extra credit will be at the sole discretion of the Circuits Experience Instructor.

Attendance at these Discussion sessions is not strictly required (just as class attendance is not strictly required), but will be beneficial for most, if not all, students.

7.6 Student Assistants

You have a student Supplemental Instructor (SI) for this course. The role of an SI is to provide additional instructional assistance to you, the students, via a more advanced student who has recently studied the course material. The SI will conduct the Monday afternoon review/problem sessions. The SI will also have office hours and may have other meeting times outside of class to work additional example problems for you, give you practice problems to work on-the-spot individually or in groups, help you prepare for exams, etc. You also have a Circuits Experience Instructor for the course who will conduct the hands-on exercises during the Monday afternoon sessions. Neither of these student assistants will have any part in grading your work for the course, although the Circuits Experience Instructor is authorized to award extra credit for full participation in the circuits experiences (see above).

7.7 Homework

Generally, there will be one homework assignment each week, typically given on Tuesday and due the following Tuesday. Homework will be turned in during class. Late homework is NOT accepted (no exceptions). Problems must be stapled together and include student name, KUID, course number and date due. Generally only a subset of the problems will be graded, but you are responsible for all problems assigned. Problem solutions (for all problems) will be posted on the course web site.

7.8 Reading

You are responsible for all reading material assigned, even if it is not explicitly covered in lecture.

7.9 Academic Misconduct

Although I encourage students to *study* together, *cheating* will be dealt with severely, with penalties up to and including a grade of F in the class and referral to the Dean. Cheating is essentially representing someone else's work as your own. Cheating includes, but is not limited to, copying solutions/answers from another student or from a solution manual, having another student do your work for you, giving or receiving quiz answers to/from another student, using a PSpice model that another student has developed, etc. If you are ever in doubt about what level of collaboration is acceptable, contact me.

8. Dates of Interest

24 August	Friday	Last day to add a class or change sections on-line
24 August	Friday	Last day to drop with 100% refund
10 September	Monday	Last day to drop with no transcript record
11 September	Tuesday	First day of withdraw period (W on transcript)
17 September	Monday	Last day to withdraw with 50% refund
1 October	Monday	Exam 1 (tentative date)
13 October	Saturday	First day of Fall Break
16 October	Tuesday	Last day of Fall Break
12 November	Monday	Exam 2 (tentative date)
14 November	Wednesday	Last day to withdraw (W on transcript)
21 November	Wednesday	First day of Thanksgiving Break
25 November	Sunday	Last day of Thanksgiving Break

6 December	Thursday	Last day of classes
11 December	Tuesday	Final Exam: 7:30 - 10:00 am (yes, that is AM)

NOTICES

Student Access Services: The Academic Achievement & Access Center (AAAC) coordinates accommodations and services for all KU students who are eligible. If you wish to request accommodations and have not contacted AAAC, please do so as soon as possible. Their office is located in 22 Strong Hall; their phone number is 785-864-4064 (V/TTY). Information about their services can be found at <http://achievement.ku.edu/>. Please contact me privately in regard to your needs in this course.

Concealed Carry: Individuals who choose to carry concealed handguns are solely responsible to do so in a safe and secure manner in strict conformity with state and federal laws and KU weapons policy. Safety measures outlined in the KU weapons policy specify that a concealed handgun:

- Must be under the constant control of the carrier.
- Must be out of view, concealed either on the body of the carrier, or backpack, purse, or bag that remains under the carrier's custody and control.
- Must be in a holster that covers the trigger area and secures any external hammer in an un-cocked position.
- Must have the safety on, and have no round in the chamber.

Tests and Quizzes: Instructors are allowed by Kansas Board of Regents policy to require backpacks, purses and other bags be placed together in a designated place in the classroom during exams and quizzes, and as such those items will not be under the constant control of the individual. Students who choose to carry a concealed handgun in a purse, backpack, or bag must review and plan each day accordingly, and are responsible for making alternate arrangements as necessary. The university does not provide appropriate secured storage for concealed handguns.

Individuals who violate the KU weapons policy may be asked to leave campus with the weapon and may face disciplinary action under the appropriate university code of conduct.

Course Materials: Course materials prepared by the instructor, together with the content of all lectures and review sessions presented by the instructor are the property of the instructor. Video and/or audio recording of lectures and review sessions without the consent of the instructor is prohibited. On request, the instructor will usually grant permission for students to make audio recordings of lectures, on the condition that these audio recordings are only used as a study aid by the individual making the recording. Unless explicit permission is obtained from the instructor, recordings of lectures and review sessions may not be modified and must not be transferred or transmitted to any other person, whether or not that individual is enrolled in the course.

Dropping/Withdrawing from Class: An engineering course can be dropped between the start of classes and [the date shown above] with no record of the enrollment appearing on the student's transcript. After that date, a student may withdraw from a class and receive a "W" on the transcript until [the date shown above]. This is the last opportunity to withdraw from a class. Also, any student on probation will violate the probation agreement if he or she drops or withdraws from a course without obtaining prior permission from the Associate Dean.