

ECE 201

M. J. Roberts

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# General Information

- Office – MK432
- E-mail - mjr@utk.edu
- Office Phone - 974-5430
- Text – Engineering Circuit Analysis by Hayt, Kemmerly and Durbin, 8<sup>th</sup> Edition
- Course Topics – Ohm's and Kirchhoff's laws, Conservation of Energy, Independent and Dependent Voltage and Current Sources, Resistance, Capacitance, Inductance, Mesh and Nodal Analysis, Norton's and Thevenin's Theorems, RC, RL and RLC Transient Analysis, Laboratory
- Prerequisites – Satisfactory completion of the freshman year

# Need for EECS 201

- The EECS department requires it of each student because the Accreditation Board for Engineering and Technology (ABET) requires course content in circuit analysis

# Class Attendance

- Registering for a class implies that the student understands when it meets and when the final exam is and plans to attend all of them
- Our final examination is 5-7 PM Thursday, December 6, 2012. Plan now to be there.
- Each student is responsible for knowing any information transmitted in every class whether or not he/she attends

# Quotes From the UT Catalog

- Academic success is built upon regular class attendance. At the University of Tennessee, students are expected to attend all of their scheduled classes.
- Students are not required to take more than two final exams on any day. The instructor(s) of the last non-departmental exam(s) on that day must reschedule the student's exam during the final exam period. It is the obligation of students with such conflicts to make appropriate arrangements with the instructor at least two weeks prior to the end of classes.

# Absence From Class

- Every student is expected to attend every class
- In case of unforeseen events if the student misses a test he/she may be excused upon presentation, in writing, of an acceptable excuse
- Acceptable excuses include death of a close family member or illness of the student

# Tests

- There will be a 30-minute test most Wednesdays that class meets. (Occasionally on Monday.) Each student may bring to each test one 3 by 5 card with anything written on it for reference during the test.
- No make-up tests will be given. If a student misses a test and has a reasonable excuse (up to a maximum of two excuses), that test will be dropped and the final exam will count more

# Test Formats

- Do not expect to see problems on the test just like the homework exercises
- The purpose of homework exercises is to teach the student something
- The purpose of test questions is to find out what the student has learned
- Problems on a test must be done within a time limit and, therefore, take a somewhat different form
- A test may have some very short- answer questions or problems to probe the student's knowledge of specific principles
- Test questions typically are to solve a problem or two by finding an analytical solution or sketching a graph



# Test Grading

- Each test grade is based on what a student actually writes down, not what he/she later claims he/she knew but did not write down
- Test grades may be appealed within one week of their return
- All appeals, no matter how apparently obvious, must be in writing and must be based on a logical argument. Sometimes 3-4 students who feel they were unfairly graded come to the instructor after class, all seeking instant relief. Fair consideration of these appeals requires time to study them.

# Test Grading

A student's work on a test must be easily legible such that the grader can immediately read it. Below are some examples of unacceptable penmanship.



$$Y(s) = \frac{Y_2(s)}{Y_1(s)} = \frac{5\omega b}{s + \omega b}$$

$$\cos\left(\frac{2\pi t}{5}\right) + \cos\left(\frac{2\pi t}{4}\right) + \frac{1}{5} \left[ \delta\left(t - \frac{1}{5}\right) + \delta\left(t + \frac{1}{5}\right) \right] + \frac{1}{5}$$

$$= jZ_n(10)$$

$$V_R = 8.095$$

$$P_p = (0.015)(2.238)$$

$$-5(j - 13j) + V_R = 0$$

$$-5(-13)(2.238) + V_R = 0$$

# Test Grading

This is an example of a student putting the correct answers in the wrong positions, confusing the grader. Don't expect to receive full credit if you do this.

(4 pts)  $I = \underline{-4\text{ A}}$

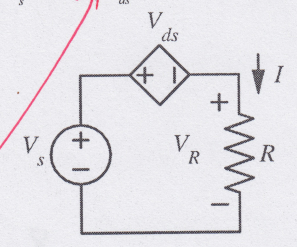
(2 pts)  $P_{V_s} = \underline{128}$  W , (2 pts)  $P_{V_{ds}} = \underline{80}$  W , (2 pts)  $P_R = \underline{-208}$  W

(If KVL or Ohm's law is not satisfied, your solution is wrong. If the sum of the absorbed powers is not zero, your solution is wrong. Please check carefully.)

$V_s = 20\text{ V}$ ,  $V_{ds} = -13I$ ,  $R = 8\Omega$

$-V_s + V_{ds} + IR = 0$   
 $-20\text{ V} + -13I + I(8) = 0$   
 $-20\text{ V} + -5I = 0$   
 $-5I = 20$   
 $I = -4\text{ A}$

$P_R = (-4)^2(8) = 128$   
 $P_{V_s} = (20)(-4) = 80$   
 $P_{V_{ds}} = (-13(-4))(-4) = -208$



The image shows a student's handwritten solution to a circuit problem. The student has correctly calculated the current  $I = -4\text{ A}$  and the power values  $P_R = 128\text{ W}$ ,  $P_{V_s} = 80\text{ W}$ , and  $P_{V_{ds}} = -208\text{ W}$ . However, these answers are placed in the wrong positions on the answer line. The student also shows the KVL equation and the power calculations. A circuit diagram is provided, showing a voltage source  $V_s$ , a dependent current source  $V_{ds}$ , and a resistor  $R$  in a loop. The current  $I$  is indicated by a downward arrow. Red circles and arrows highlight the errors in the student's work.

# Test Grading

Often on tests the phrase, “numerical value” will appear. It means a number, not an expression that can be reduced to a number.

For example  $3 + j7$  is a number but  $1 - e^{j\pi}$  is not because  $1 - e^{j\pi}$  can be reduced to the number 2. This is done to insure that all students finish problems to the same level of completion so their work can be fairly compared.

# Test Grading

Strong emphasis in grading will be placed on correct numerical answers. An answer with the wrong sign, but otherwise right, is completely wrong. If you make an early mistake in a problem and it leads to other wrong answers, they are all wrong. I don't have time to try to recalculate your later answers based on an earlier mistake to see whether your procedure is correct. Everyone makes mistakes. Good engineers check and re-check their work to find and correct mistakes. I expect you to do the same. If you are well prepared for a test you will have time to solve the problem(s) and then re-check your work. If you are not well prepared you will not have time to re-check for mistakes.

# Course Grades

- The course grade will be weighted 40% on test scores, 30% on the final exam, 20% on laboratory and 10% on homework scores. Late homework will be penalized 20% per class meeting late
- Course grades are based on a student's level of performance, not on his/her level of effort (Except that homework will be evaluated mostly based on effort rather than correct answers. The relative importance of effort versus results will be at the sole discretion of the homework grader.)
- After every test is graded a summary of the overall class grades and a graph to help students estimate their current status will be available on the web

# Course Grades

- Course grades should reflect performance of the students relative to the other students in the class, and in previous similar classes
- To see an estimate of your probable course grade look at the distribution of overall grades (which will be on blackboard) and your position in it

# Course Grades

- The overall course grade average is a weighted average of the grades on tests, homework, laboratory and the final examination, expressed as a percentage (0 --> 100)
- The test average is computed by converting all test scores into percentages and then averaging those percentages
- The homework average is computed by dividing the total number of points earned by the total possible points on all homework assignments and converting that to a percentage
- The laboratory average is computed the same way as the test average



# Homework Grading

- Grading homework is the exclusive province of the homework grader.
- Any questions about missing or wrongly-recorded homework grades should be addressed directly to the homework grader. I accept reports of changes or corrections of homework grades only from the homework grader.
- Late homework should be delivered directly to the homework grader.
- I will not handle homework at all except possibly to collect it when it is due at class time or return it to the class.
- Homework slipped under my office door will be recycled.

# Course Grades

For students majoring in Electrical Engineering or Computer Engineering there is a requirement that all courses in the student's major be completed with a grade of C or better. A grade of C- is not acceptable.

# Laboratory

- The laboratory associated with the course is handled completely by the lab instructors.
- Lab reports should be submitted to them directly.
- Any problems with missing or inaccurate grades must be settled with the lab instructors.
- I will accept grade corrections only from the laboratory instructors.

# Incompletes

- The grade, incomplete, is intended to be assigned in cases in which the student has completed the preponderance of the course and has a passing grade in the work done
- Incompletes are not given to allow the student to avoid a bad grade

# Withdrawal

- Withdrawal before the drop deadline has the same effect as not having taken the class at all
- Withdrawal after the drop deadline requires the instructor to assign either a WP or WF grade based on the student's relative class standing at the time he/she drops the course

# ACADEMIC STANDARDS OF CONDUCT

## The Honor Statement (from Hilltopics)

An essential feature of The University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.

# Academic Integrity

## **Cheating**

First Offense	Grade of zero on that assignment.
Second Offense	F in the course.

All cheating incidents are reported to the college administrators. On any cheating incident there is always a possibility, based on the students overall record, of being dropped from all courses and denied future admission to the University.

Every student has a right of appeal on any accusation of cheating. See Hilltopics for details.

# Class Activity

(after 9/3/2012)

- Friday
  - Lecture on new material
  - Students should already have read the material
  - Homework collected for grading
  - Tests returned (normally)
- Monday
  - Any new material not covered on Friday, followed by problem solving
  - Students should have already attempted to solve the problems
  - Homework returned (normally)
- Wednesday
  - Problem solving
  - 30 minute test



# Questions

- In class - Questions are very important and, when asked in class, allow all students to hear the answer
- Outside of class - Questions are also important and some individual attention may be given to the student to help him/her over a hurdle
- Statistically, the students who ask the most questions generally (but not always) receive the highest grades

# Classroom Discipline

- The overriding principle is that students should not create distractions for fellow students or the instructor during class time
- Turn off cell phones and pagers
- Come on time to avoid distracting others with your late arrival
- When the instructor begins class, conversations among students should cease immediately

# Weather

- If UT is closed, class will not meet
- If Knox county or city schools are closed and a test is scheduled, the test is automatically rescheduled for the next class meeting

# Office Hours

- MWF 10-11:15 AM
- Other times by appointment
- I am usually there during office hours and helping you when you come during office hours is my highest priority.
- If you come at other times and my door is open, walk in. I will help you if I have time.

# International Students

- Occasionally there are some communication difficulties with international students because of the language issue
- Some names of international students are unfamiliar to an American instructor's ear and may not be pronounced correctly

# Resources on Blackboard

- This presentation
- All homework assignments
- Test solutions for this semester
- Weekly summaries of grade distributions

Resources at <http://web.eecs.utk.edu/~roberts/>

- All presentation slides
- Old test solutions