ECE 333 LINEAR ELECTRONICS I - SPRING 2010

Section: ECE-333 001 14030 TR 3:00 PM - 4:15 PM  Room #LH 2

Instructor: Alok Berry, Room # 3238, The Nguyen Engineering Building  
Phone: (703) 993-1606  e-mail: aberry@gmu.edu  
Office Hours: MW 1:30 p.m. – 2:30 p.m.  
TR 1:00 p.m. - 2:00 p.m.  
Others by appointment

Text: Microelectronics Circuits, Fifth Edition by Sedra and Smith  
Publisher: Oxford University Press. ISBN# 0-19-514251-9  
Cost: New Book $170.35  Used Book $127.75

Prereq: Grade of C or better in ECE 280,

Topics: Principles of operation and applications of electron devices and linear circuits. Topics include semiconductor properties, diodes, bipolar and field-effect transistors, integrated circuits, amplifiers, feedback concepts, operational amplifiers and analog design.

Grading: Graded Work: Home Works, Reading Assessment, Class Participation and Attendance, Projects, and three Class Exams.

Home Work, Class Participation, attendance and reading assessment 10 %
Mini Exam in the 3rd week of classes 5%
Project 5%
2 Class Exams: 50 % (Each exam 25 %)
Comp. Final Exam 30%

IMPORTANT INSTRUCTIONS

a. Prior to the class, it is expected that one reads the material which is going to be covered in the class. In the beginning of every class I will ask questions to different students to check about reading assessment.

b. After particular section/sections are completed the students must finish the HW problems pertaining to that section. In the next class I will ask the students to submit only one problem out of all the HW problems from the section/sections covered in the last class. The problem to be submitted will be announced in the beginning of the class and you must submit the problem right in the beginning of the class. No credit will be given if you do not submit problem at that time. You have to submit HW only in the class. Do not submit HW in my office.

c. No overdue for home works and no makeup for exams. In extreme case if a makeup exam is given then only 50% of the earned grades in the makeup exam will be counted in making the final grade.

d. GMU HONOR CODE will be strictly enforced. Violations of the honor code may result in no credit for this course.
You are not allowed to bring any loose sheets or formula sheet in the exam. You have to show the work at the space provided, if you need more space you can use the backside of the page. I will provide you the formulae sheet and the blank sheets for scrap work.

It is required that you write all the class exams, you get zero points for the missed exam/exams.

For maximum learning experience it is very important that students attend all the lectures and do all the suggested home work problems and examples done in the book. Some exam questions will be drawn exclusively from lecture notes and problems you are supposed to have seen. Solution to home work problems will be provided.

Please do not come late to the class as it disturbs the whole class. If because of some emergency you have to leave the class early you must inform me in the beginning of the class. If you show up late in the class or you leave the class early, you may lose all the credit for class participation and attendance.

**PROPOSED SCHEDULE**

<table>
<thead>
<tr>
<th>Week number and Dates</th>
<th>Topics</th>
<th>Suggested HW Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1/19, 1/21</td>
<td>Introduction, 3.1, 3.2, 3.3</td>
<td>4, 10, 15; 22, 26; 34, 40, 49</td>
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<tr>
<td>2. 1/26, 1/28</td>
<td>3.3, 3.4</td>
<td>54, 55, 58, 63; 68, 71,</td>
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<tr>
<td>3. 2/2, 2/4</td>
<td>3.5, 3.6</td>
<td>82, 83, 84, 85; 93, 94, 99,105(a-e)</td>
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<tr>
<td>4. 2/9, 2/10</td>
<td>3.7, 3.8*, 3.9*</td>
<td>106, 107, 108, 111, 114, 118</td>
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<tr>
<td>5. 2/16, 2/18, 2/23</td>
<td>4.1, 4.2</td>
<td>5, 7; 15, 27, 33;</td>
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<td></td>
<td>First Class Exam</td>
<td>Chapter 3 and 4.1, 4.2</td>
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<tr>
<td>6. 2/23, 2/25</td>
<td>4.3</td>
<td>36, 42, 47</td>
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<tr>
<td>7. 3/2, 3/4</td>
<td>4.4, 4.5;</td>
<td>51; 61, 66;</td>
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<td>8. 3/16, 3/18</td>
<td>4.6, 4.7</td>
<td>69, 75;</td>
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<td>9. 3/23, 3/25</td>
<td>4.7, 4.8</td>
<td>79, 81, 85, 87; (90, 91)</td>
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<td>10. 3/30, 4/1</td>
<td>5.1, 5.2</td>
<td>2, 3, 10, 19; 20, 24, 39;</td>
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<tr>
<td>4/6</td>
<td>Second Class Exam</td>
<td>4.3 – 4.8, 5.1, 5.2</td>
</tr>
<tr>
<td>11. 4/6, 4/8</td>
<td>5.3, 5.4, 5.5</td>
<td>73, 74, 76, 78, 79; 93, 97, 98,</td>
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<tr>
<td>12. 4/13, 4/15</td>
<td>5.6, 5.7</td>
<td>116, 124; 128, 139, 144</td>
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<td>13. 4/20, 4/22</td>
<td>5.7, 5.8</td>
<td>some more problems</td>
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<td>14. 4/27, 4/20</td>
<td>5.8</td>
<td></td>
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<tr>
<td>Tuesday, 5/11</td>
<td>Comp. Final Exam</td>
<td>Chapters 3, 4 and 5</td>
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<tr>
<td></td>
<td>Time 1:30 – 4:15 p.m.</td>
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</tbody>
</table>

Note that the exam schedules for the exams are tentative. Actual dates will be announced in the class. No make-up for exams. In an extreme case if a makeup exam is given only 50% of the credit (what one earns in the makeup exam) may be included in making the final grade. The makeup exam may be an oral exam.

The sections with A*@ students should cover themselves.

Some changes may be made in assigned home work problems.

**TEST TIPS**

* Print your Name VERY CAREFULLY on First Sheet/Formula sheet (if provided)
* Read the Problem
* Answer what (but only what) is Asked
* Label diagrams with parameters in equations - Points are lost here!
* Watch for, and then include UNITS in answers - Points are lost here!
* Identify Answers (Box, Circle, Underline, etc) and put them at the designated space (If provided).
* Communicate
* You have seen all required concepts before

DON'T PANIC!!

In general:

Manage your time. (Also known as "racking up the points")
Skim all problems - find familiar areas.
Read total problem through: if part "a" is "impossible", parts "b", "c", etc may be "doable".
Allot more time to high point value problems.
Leave time to go back and touch up earlier problems.
Do easiest problems first.
Quit when you reach the end of a problem's budgeted time.
You will invariably get more points by starting a new problem than by trying to finish an old one.
Guess. (If the odds are with you)
Make clear how you are solving a problem. (Don't make me guess)
Tell me what you would do (if you had more time or if the problem had not gotten out of control by some errors).
Note any assumptions you have made in doing the problem.
Watch point values: generally they tell how much work is involved.

HOMEWORK DO’S AND DON’TS

A. Mechanics: Points will be deducted for not following these guidelines.

You are expected to do the HW problems pertaining to a section after a section has been covered in the class and it may be collected in the next class.

1. Buy, beg or steal a stapler to fasten homework pages together.

2. On all the paper/papers you submit you must print your name, last three digits of your G#, the date and the section# pertaining to that HW.

3. Use only standard (8 ½ x 11) size paper.

4. Do not use legal size paper.

5. Computer paper is OK if cut to standard size.

6. Do not use spiral bound notebook paper.

7. Do not fold assignments in half.

8. Put all the problems in order.

9. On the first page/cover sheet must write the assigned homework problems and you must mention the problems which you have not attempted.
10. Home works will be accepted in class only. If the homework is not submitted in the class, there are good chances for it to be lost.

11. Must **draw all the required circuit diagrams**. If required circuit diagrams are not drawn for a problem you may get no credit for the entire HW.

12. In HWs and exams etc. you will lose points if you do not put appropriate units and Prefixes with your answers.

13. **If you do not follow these guidelines you may get no credit for the HW**

14. **IN ALL THE WORK TO BE GRADED SHOW ALL STEPS AND ALL THE WORK NEATLY.** You will get zero credit if all the work is not shown.

**B. Other considerations**
1. Show work. Techniques, approaches and methods for solving are more important than answers on homework (but answers DO count).
2. Homework and exams must be individual effort. Students are encouraged to form study groups to learn and discuss the material.
3. Include all diagrams, labels etc. necessary for the problem to stand "alone."
4. Identify (Box, circle, underline, etc) answers.

**IMPORTANT INFORMATION:**

Before coming to the class all persons (including professor) will turn off all the communication devices (including cellular phones, pagers etc). It is the university policy.

It is very important that you do not miss classes. From second class, almost in every class I will ask questions about the reading assignment and if I find that some student is not doing the reading assignment, grade of that student may go down by one step, e.g. >C+= will go down to >C=, >B= will go down to >B->. If you miss many classes you may not get any credit in class participation.

**No make-up for missed exams.** In an extreme case if a makeup exam is given only **50% of the credit** (what one earns in the makeup exam) may be counted in making the final grade. The makeup exam may be an oral exam.

The exam problems will consist of
   a. Multiple choice problems in which you will have to mark the correct answer. For these problems no partial credit will be given and each of these may be worth 1 point.
   b. Multiple choice problems in which you will have to show the work and partial credit will be given and each of these problems will be worth more than 1 point
   c. Some exam problems in which you will have to show all the work.

If you score very low (less than 50%) in the exam/exams you may get a grade AF in the course.
The last date to drop is February 19\textsuperscript{th}.
The Selective Withdrawal period is from February 22\textsuperscript{nd} to March 26\textsuperscript{th}. 
IMPORTANT: Please note it is the university policy that all sound emitting devices shall be turned off during classes unless otherwise authorized by the instructor. It is required by me that all of these devices will be kept in the purse or in the back-pack. If you have an emergency and want to keep the cell phone out you must talk with me prior to the class.

SOME IMPORTANT INFORMATION

ACADEMIC INTEGRITY

GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else’s work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

GMU EMAIL ACCOUNTS

Students must activate their GMU email accounts to receive important University information, including messages related to this class.

OFFICE OF DISABILITY SERVICES

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS. http://ods.gmu.edu

OTHER USEFUL CAMPUS RESOURCES:

WRITING CENTER: A114 Robinson Hall; (703) 993-1200; http://writingcenter.gmu.edu

UNIVERSITY LIBRARIES “Ask a Librarian”
http://library.gmu.edu/mudge/IM/IMRef.html

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS): (703) 993-2380;
http://caps.gmu.edu

UNIVERSITY POLICIES

The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university affairs.

In case of emergency the important number to call is 703-993-2810