ECE 433 LINEAR ELECTRONICS II FALL 2008

Class Time and Location:  Sec. 001 71938         TR 5:55 p.m. - 7:10 p.m.        Room#  R B201

Instructor:  Alok K. Berry, Room No. 251 in ST2   TA:  Anoop Palav1
             Phone: (703)-993-1606             email: aberry@gmu.edu
             Office Hours: MW 1:00 p.m. – 2:00 p.m.  By appointment only
                   TR 12:30 p.m. - 1:00 p.m.
                   TR 3:00 p.m. - 4:00 p.m.
                   TR 7:15 p.m. - 8:00 p.m.  By appointment only
             Others by appointment


Prereq.  Grade of C or better in ECE 333

Topics:  It is the second course in linear electronics covering the topics: differential amplifiers, feedback
         circuits, power amplifiers, frequency response, analog integrated circuits, operational amplifier
         systems, oscillators, wide band and microwave amplifiers, and computer-aided design.

Important Instructions/Information

a. Prior to the class, it is expected that one reads the material which is to be covered in the class.

b. Almost every week or so a set of assigned homework problems will be collected, graded and then it will
   be returned.

c. Homework solutions will be provided. Solutions to exams will be discussed in class. Solutions to
   exercises of required chapters may be obtained from me.

d. No overdue for homework and 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 counted in making the final grade. The makeup exam may be
an oral exam.
e. GMU HONOR CODE will be strictly enforced. Violations of the honor code may result in receiving no credit for this course.

f. Important Dates:

The last date to drop is September 26th.

The Selective Withdrawal period is from September 27th to October 24th.

Grading: Home Works and Class Participation 10%
          Mini Exam in 2nd in week of classes 5%
          Project/Capstone Project 10%
          3 Class Exams (25% each exam) 75%

This semester instead of comp final exam there is a capstone project which is due by the Comp Exam Date.

Topics to be Covered

1. Single-Stage Integrated-Circuit Amplifier 3.5 weeks
2. Differential and Multistage Stager Amplifiers 2.5 weeks
3. Feedback 3 weeks
4. Operational Amplifiers etc. 3 weeks

Three Exams 3 Classes

Read Appendix A yourself and if time permits Chapter 14 may also be covered.

Please follow the following guidelines for ECE 433 homework

1. Use only the regular size paper (8.5" by 11")

2. All pages must be stapled.

3. Do the homework neatly and show all the steps clearly.
4. Must draw the required circuit or circuits for each problem? No grades for the entire home work if in any problem required circuits are not drawn.

5. Put the answers in block or underline them. You will lose 50% of the grades in any HW if you do not highlight the answer/answers.

The homework **will not be accepted** if these guidelines are not followed.

**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.

**VERY IMPORTANT:** If you receive very low grades in one or more class exams, then your grade may go down, at least, by one step (e.g. B will go down to B-). It may even go down to a grade of AD@ or AF@.

Your final grade is assigned based upon what you have earned during the semester.

The homework will be accepted only during the class. Graded homework will be returned in the class. The graded work of the students not present in the class will be placed outside my office. If you are not present in a class, it is your responsibility to collect it.

You are allowed to discuss the home works and projects with your classmates but copying any material to be submitted for grading will be considered a violation of the honor code.

**In exams you are not allowed to bring any formula sheet, if necessary I will provide the formulas.**
# Tentative Class Schedule

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<thead>
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<th>Dates</th>
<th>Subject</th>
<th>Lecture Reference</th>
<th>Independent Reading</th>
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<tbody>
<tr>
<td>8/25, 8/27</td>
<td>Introduction, Comp. of MOS and BJT, IC Biasing</td>
<td>6.1 – 6.3</td>
<td>Review 4.5 – 4.7, 5.5 – 5.7</td>
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<tr>
<td>9/2, 9/4</td>
<td>Review 4.7-4.9, High Frequency response</td>
<td>6.3, 6.4 – 6.6</td>
<td>Read 4.7 - 4.9, 5.7 – 5.9</td>
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<tr>
<td>9/9, 9/11</td>
<td>Active Loaded CG and CB Amplifier</td>
<td>6.7 – 6.9</td>
<td>Read Sec. 1.6</td>
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<tr>
<td>9/16, 9/18</td>
<td>Source and Emitter Followers</td>
<td>6.9 – 6.12</td>
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<tr>
<td>9/23, 9/25</td>
<td>MOS /BJT Differential Pair</td>
<td>7.1 – 7.3</td>
<td>Introduction Ch. 7</td>
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<td>9/30, 10/2</td>
<td>Nonideal Characteristics</td>
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<tr>
<td>10/7, 10/9</td>
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<tr>
<td>10/16,10/21</td>
<td>Feedback Structure and Properties of 8</td>
<td>8.1 – 8.3</td>
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<tr>
<td>10/23,10/28</td>
<td>II\textsuperscript{nd} Class Exam</td>
<td>Chapter 7, 8.1-8.3</td>
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**1\textsuperscript{st} Class exam** 4.8 - 4.9, 5.8 - 5.9, and Chapter 6

**Discussion**
10/30, 11/4 Series-Shunt, Series-Series Shunt-Shunt and Shunt-Series topologies 8.4-8.6

11/6, 11/11 Loop Gain, Stability problem etc. 8.7-8.11


11/20, 11/25 DC and Small Signal Analysis of the 741 9.4-9.5

12/2, 12/4 Gain, Frequency Response etc. 9.6

**IIIrd Class Exam** 8.3-8.11 and 9.1-9.6