Course title:  
Advanced Analog Electronics

Instructor:  
Dr. Anders M. Jorgensen  
Workman 227  
Phone: 505-835-5450  
e-mail: anders@mmt.edu

Class hours:  
Monday, Wednesday, Friday 10:00-10:50

Classroom location:  
Workman 113

Laboratory hours:  
Monday 14:00-17:00

Laboratory location:  
Workman 189

Office hours:  
TBD

Textbooks:

1. Adel S. Sedra and Kenneth C. Smith, Microelectronic Circuits, Fifth edition, Oxford University Press. (This is the textbook for EE 321)


Learning objectives:

1. Apply basic concepts from previous courses to practical analog circuits and techniques.

2. Learn principles and good experimental technique through laboratory exercises.

3. Exposure to a selected variety of practical circuits.

4. Be able to use a new circuit or IC after reading the section in ‘Horowitz and Hill’ and the spec sheet.

Prerequisites:

EE 231 and EE 231L, EE 321 and 321L, EE 341.  
EE 322 and EE 322L are integrated and must be taken together.

Topics covered:

1. Linear voltage regulators  
2. Switching voltage regulators  
3. Interference and grounding  
4. Noise in circuits  
5. Oscillators and comparators  
6. Timers

Course work:

1. Reading. You will be required to keep up with the course by reading the assigned sections in the books.

2. Homework. Assigned approximately weekly.

3. Laboratory exercise. Scheduled most weeks.

4. Tests. Three tests in class during the semester.

5. Final exam. During finals week.

Grading policy:

EE 322
1. Homework 30%

EE 322L
2. Three tests 50%

3. Final exam 20%

Approximate Lecture Schedule:

<table>
<thead>
<tr>
<th>Week of</th>
<th>Lecture</th>
<th>Test</th>
<th>Laboratory Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 20</td>
<td>Voltage regulators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan 25</td>
<td>Switching regulators</td>
<td></td>
<td>Pspice simulation</td>
</tr>
<tr>
<td>Feb 1</td>
<td>Switching regulators, grounding</td>
<td></td>
<td>Linear regulator</td>
</tr>
<tr>
<td>Feb 8</td>
<td>Oscillator</td>
<td></td>
<td>Switching regulator</td>
</tr>
<tr>
<td>Feb 15</td>
<td>Comparators</td>
<td>1</td>
<td>Sine oscillator</td>
</tr>
<tr>
<td>Feb 22</td>
<td>Timers, Oscillators</td>
<td></td>
<td>Comparators</td>
</tr>
<tr>
<td>Mar 1</td>
<td>Active filters</td>
<td></td>
<td>555 timer</td>
</tr>
<tr>
<td>Mar 8</td>
<td>RLC, VCVS</td>
<td></td>
<td>Matlab filters</td>
</tr>
<tr>
<td>Mar 15</td>
<td></td>
<td></td>
<td>Spring Break</td>
</tr>
<tr>
<td>Mar 22</td>
<td>Phase-locked loops</td>
<td>2</td>
<td>Active filters</td>
</tr>
<tr>
<td>Mar 29</td>
<td>Phase-locked loops, Noise</td>
<td></td>
<td>Phase-locked loops</td>
</tr>
<tr>
<td>Apr 5</td>
<td>Voltage/current feedback op-amps</td>
<td></td>
<td>Noise</td>
</tr>
<tr>
<td>Apr 12</td>
<td>Differential pairs</td>
<td></td>
<td>Current Feedback</td>
</tr>
<tr>
<td>Apr 19</td>
<td>Differential amplifier</td>
<td></td>
<td>Discrete Op-amp - 1</td>
</tr>
<tr>
<td>Apr 26</td>
<td>Differential/multi-stage amps</td>
<td>3</td>
<td>Discrete Op-amp - 2</td>
</tr>
<tr>
<td>May 3</td>
<td>Review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 10</td>
<td></td>
<td></td>
<td>Final Exam</td>
</tr>
</tbody>
</table>