ELE 215 – LINEAR CIRCUITS LABORATORY
Spring 2017

Catalog Description: DC measurements, natural and step response of first- and second-order circuits, AC measurements, impulse and frequency response, operational amplifier circuits.

Schedule: Lecture M 12:00-12:50 in Edwards Auditorium
Labs M, T, W, R, or F 2:00-4:45, W or F 10:00-12:45, all in Pastore 101

Prerequisites: ELE 202, credit or concurrent enrollment in ELE 212

Instructor: Prof. Peter F. Swaszek, 109009 URI at Schneider Electric, swaszek@uri.edu or (401) 874-5802 (try e-mail first!).
Office hours (typically in Pastore 125): Monday 10-11:45, Wednesday 10-11, or by appointment

Materials: Some topics will be drawn from the ELE 212 textbook; the ELE 202 electronics kit will be useful for the op amp exercises

Course Website: http://www.ele.uri.edu/~swaszek/ele215 I will post relevant class materials here including textbook references and homework problems. The site has access limits

Lecture: Content will include topics not covered in ELE 212 (e.g. op amps, transfer functions, and pi-delta transformations) and information relevant to future laboratory exercises; four class periods will be used for ELE 212 tests.

Grading:
Final grades typically are: A=90-100%, B=80-89%, C=70-79%, etc.

<table>
<thead>
<tr>
<th></th>
<th>Weight</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>8 %</td>
<td>No late submissions – due dates will be announced</td>
</tr>
<tr>
<td>10 Lab Summaries, some including Prelabs (100 pts for each lab exercise)</td>
<td>66 %</td>
<td>Prelabs due before your lab period starts; summary pages due at a following 215 lecture (the exact due date is listed on each summary sheet) – submitted to me, not the TA</td>
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<tr>
<td>Resistor Puzzle</td>
<td>8 %</td>
<td>To be described; due Feb 27 at noon</td>
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<tr>
<td>Black Box Project</td>
<td>10 %</td>
<td>To be described; due May 1 at noon</td>
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<tr>
<td>Final exam</td>
<td>8 %</td>
<td>May 11 11:30-2:30; closed book, two pages of notes</td>
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Lecture Schedule (tentative):

<table>
<thead>
<tr>
<th>Class #</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/23</td>
<td>Introduction</td>
</tr>
<tr>
<td>2</td>
<td>1/30</td>
<td>SigGen, scope, MultiSim</td>
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<tr>
<td>3</td>
<td>2/6</td>
<td>Op amps (chap 5 in text)</td>
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<tr>
<td>4</td>
<td>2/13</td>
<td>Op amps – Introduction to the Resistor Puzzle</td>
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<tr>
<td>5</td>
<td>2/27</td>
<td>ELE 212 Test #1</td>
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<tr>
<td>6</td>
<td>3/6</td>
<td>Transfer functions (chap 14 in text)</td>
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<tr>
<td>7</td>
<td>3/20</td>
<td>Transfer functions</td>
</tr>
<tr>
<td>8</td>
<td>3/27</td>
<td>ELE 212 Test #2</td>
</tr>
<tr>
<td>9</td>
<td>4/3</td>
<td>Op amps, Delta-Wye</td>
</tr>
<tr>
<td>10</td>
<td>4/10</td>
<td>Transfer functions</td>
</tr>
<tr>
<td>11</td>
<td>4/17</td>
<td>ELE 212 Test #3</td>
</tr>
<tr>
<td>12</td>
<td>4/24</td>
<td>Spice, RMS,</td>
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<tr>
<td>13</td>
<td>5/1</td>
<td>“Black Box” reports due – discussion of results</td>
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</tbody>
</table>

Laboratory Schedule (tentative):

<table>
<thead>
<tr>
<th>Lab #</th>
<th>Dates</th>
<th>Exercise Topic</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1/23-27</td>
<td>Math Exercise – during lab period</td>
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<tr>
<td>1</td>
<td>1/30-2/3</td>
<td>Ohm’s Law</td>
<td>100</td>
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<tr>
<td>2</td>
<td>2/6-10</td>
<td>Device Characteristic</td>
<td>100</td>
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<tr>
<td>3</td>
<td>2/13-17</td>
<td>RC Measurements</td>
<td>100</td>
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<tr>
<td>4</td>
<td>2/27-3/3</td>
<td>Op Amps I</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>3/6-10</td>
<td>Node and Mesh Methods</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>3/13-17</td>
<td>No lab – Spring Break</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3/20-24</td>
<td>Phasors I</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>3/27-31</td>
<td>Phasors II</td>
<td>100</td>
</tr>
<tr>
<td>9</td>
<td>4/3-7</td>
<td>Phasors III</td>
<td>100</td>
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<tr>
<td>10</td>
<td>4/10-14</td>
<td>Op Amps II</td>
<td>100</td>
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<tr>
<td>11</td>
<td>4/17-21</td>
<td>Transients</td>
<td>100</td>
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<tr>
<td>12</td>
<td>4/24-28</td>
<td>Black Box work period</td>
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Any student with a documented disability is welcome to contact me as early in the semester as possible so that we may arrange reasonable accommodations. As part of this process, please be in touch with Disability Services for Students Office at 330 Memorial Union, 401-874-2098.