

ENS 203 CIRCUITS I Meriç Özcan **SEPTEMBER 2011**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
COURSE DESCRIPTION: It is the aim of this course to teach you the basics of electronic circuit design. We start from component level, introduce basic circuit analysis methods, equivalent circuit methods etc. By the 4th week or so you will meet the differential equations which are the basis of all engineering and science we know...We will use differential equations to solve the so called transient (time-varying) problems. A few weeks after that we get into sinusoidal state-state analysis (which assumes system is excited by a sinusoidal source and transients are died out) again this is a very important concept for all engineering not just for Electronics. Here students who take Signals Course will feel more comfortable...You will learn analyzing power in AC circuits and you will learn the resonance concept. After the 2nd midterm we get into active circuits such as amplifiers, operational amplifiers and finally some lectures on diodes and bipolar junction transistors. Labs are involved...You start with basic simple experiments...However, at the end you are going to build a simple working radio... If you do not have fun in the labs you should ask yourselves if you really want to be an engineer. This course is not trivial. However, if you study properly it is not rocket science either. You cannot afford missing more than one or two classes. Subjects change very very quickly, just look at this syllabus and check the sections from the textbook, you will get the feeling... If you do not miss any of the classes, if you solve homework problems, if you ask questions whenever you don't understand something, and if you work hard in the lab, you will learn great a deal and you will pass the course one way or another. Final words... You will just see the tip of the iceberg in this course. Hopefully you will get infected with electronics and continue with Circuits II...						
LECTURES: Tue 11:40-13:30 FMAN 1099 Fri 12:40-13:30 FENS G077 OFFICE HRS: TBD TEXT BOOK: Electrical Engineering Principles & Applications, Allan R. Hambley, 4th Ed. You absolutely need the book, any Ed. is ok. GRADING POLICY: Midterm 1 = 15 % Midterm 2 = 25 % Final =35% Lab = 20 % Quizzes =5 % HW = 0 to -10% (subject to change) Labs are strictly mandatory. Missing one lab results with one letter grade down, missing two labs is an automatic F. Cheating is not tolerated, do not expect any sympathy for the laziness. Seriousness and hard work is appreciated.						
25	26 start	27 CHAPTER 1 1.1, 1.2 Intro., current, voltage, power, energy definitions	28	29 Get the LAB INTRO handout from CANON	30 CHAPTER 1 1.2—1.7 Kirchhoff's Voltage and Current Law, Circuit elements...	
LAB sessions will be in FENS 1033 LAB A: Mon 15:40-19:30 LAB B: Tue 15:40-19:30 LAB C: Wed 08:40-12:30 LAB D: Fri 08:40-12:30 LAB E : Fri 13:40-17:30 Recitations A1, A2, A3 are on Thu 17:40-19:30 and Recitations B1,B2 are on Fri 08:40-10:30 after the first week. There will be a recitation every week unless notified before. Rec A1 : FENS L062 Rec A2: FENS G025 Rec A3: FENS L035 Rec B1: FENS L048 Rec B2: FENS G029						

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OCTOBER 2011

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PREPARE FOR THE LAB 1 THIS WEEK	3 LAB 1 Instruments I	4 CHAPTER 2 2.1—2.3 Resistive circuits, parallel and series networks...	5	6	7 CHAPTER 2 2.4—2.5 Node Voltage Analysis, Mesh Current Analysis	8																																																																																				
9	10	11 CHAPTER 2 2.4—2.5 Node Voltage Analysis, Mesh Current Analysis	12	13	14 CHAPTER 2 2.5—2.6 Mesh Current Analysis continued..	15																																																																																				
PREPARE FOR THE LAB 2 THIS WEEK	17 LAB 2 Instruments II	18 CHAPTER 2 2.6—2.8 Thevenin & Norton Circuits, Superposition...	19	20	21 CHAPTER 2 2.6—2.8 Thevenin & Norton Circuits, Superposition...	22																																																																																				
23	24	25 CHAPTER 3 3.1—3.4 Capacitance and Inductance	26	27	28 half day	29																																																																																				
30	31	<div>September 2011</div> <table> <tr><th>S</th><th>M</th><th>T</th><th>W</th><th>Th</th><th>F</th><th>Sa</th></tr> <tr><td></td><td></td><td></td><td></td><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td></tr> <tr><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td></tr> <tr><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td></td></tr> </table> <div>November 2011</div> <table> <tr><th>S</th><th>M</th><th>T</th><th>W</th><th>Th</th><th>F</th><th>Sa</th></tr> <tr><td></td><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr> <tr><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td></tr> <tr><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td></tr> <tr><td>27</td><td>28</td><td>29</td><td>30</td><td></td><td></td><td></td></tr> </table>				S	M	T	W	Th	F	Sa					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		S	M	T	W	Th	F	Sa			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				Notes:
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<div>PREPARE FOR THE LAB 1 THIS WEEK</div>	<div>LAB 3 Thevenin Equivalence...</div>	<div>1CHAPTER 43.5 — 4.1Introduction to first order RC circuits</div>	<div>2</div>	<div>3</div>	<div>4CHAPTER 44.1—4.2Transient CircuitsFirst order RC, RL circuits...</div>	<div>5</div>																																																																																																
<div>6</div>	<div>7semester break this week</div>	<div>8</div>	<div>9HOLIDAY</div>	<div>10</div>	<div>11</div>	<div>12</div>																																																																																																
<div>13</div>	<div>14</div>	<div>15CHAPTER 44.3—4.5RC, RL circuits with sources, 2nd order circuits</div>	<div>16</div>	<div>17</div>	<div>18CHAPTER 55.1—5.2Steady State Sinusoidal Analysis, Phasors</div>	<div>191st MIDTERM</div>																																																																																																
<div>PREPARE FOR THE LAB 1 THIS WEEK</div>	<div>21LAB 4 RC and RL</div>	<div>22CHAPTER 55.3—5.6Complex Impedances, Circuit analysis, power in AC circuits</div>	<div>23</div>	<div>24</div>	<div>25CHAPTER 66.1 — 6.4Frequency Response, First order filters, Bode Plots</div>	<div>26</div>																																																																																																
<div>27</div>	<div>28</div>	<div>29CHAPTER 66.4 — 6.5Bode Plots, High Pass Filters</div>	<div>30</div>																																																																																																			
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				1	2 CHAPTER 6 6.6 — 6.7 Series Resonance Parallel Resonance	3 withdrawals next week																																																																																					
PREPARE FOR THE LAB 1 THIS WEEK	5	6 CHAPTER 11 11.1 — 11.3 Basic Amplifier Concepts, Cascaded Amplifiers	7	8	9 CHAPTER 11 & 14 11.11 Differential Amplifiers, 14.1-14.4 Operational Amplifiers	10																																																																																					
	LAB 5 Resonance																																																																																										
11	12	13 CHAPTER 14 Op-Amps continued... Example circuits...	14	15	16 CHAPTER 14 Op-Amps continued...	17 major decl. 19-23 2nd MIDTERM																																																																																					
PREPARE FOR THE LAB 1 THIS WEEK	19	20 CHAPTER 10 10.1—10.3 Basic Diode, Load Line Analysis, Zener Diode	21	22	23 CHAPTER 10 10.4—10.5 Diode Models	24																																																																																					
	LAB 6 Amplifiers																																																																																										
25	26	27 CHAPTER 10 10.6—10.8 Rectifiers, Wave Shaping, Small Signal Circuits	28	29	30 CHAPTER 10 10.6—10.8 Rectifiers, Wave Shaping, Small Signal Circuits	31 New Year's Eve																																																																																					
		November 2011 <table><tr><td>S</td><td>M</td><td>T</td><td>W</td><td>Th</td><td>F</td><td>Sa</td></tr><tr><td></td><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr><tr><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td></tr><tr><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td></tr><tr><td>27</td><td>28</td><td>29</td><td>30</td><td></td><td></td><td></td></tr></table>		S	M	T	W	Th	F	Sa			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				January 2012 <table><tr><td>S</td><td>M</td><td>T</td><td>W</td><td>Th</td><td>F</td><td>Sa</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr><tr><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td></tr><tr><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td></tr><tr><td>29</td><td>30</td><td>31</td><td></td><td></td><td></td><td></td></tr></table>		S	M	T	W	Th	F	Sa	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					Notes: For the last week of December: 1-No recitations.	
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<div>PREPARE FOR THE LAB 1 THIS WEEK</div>	2	3 CHAPTER 13 13.1—13.2 Bipolar Junction Transistors, Common Emitter Amplifier	4	5	6 CHAPTER 13 13.4—13.6 NPN transistor, large signal models, DC analysis	7																																																																																																		
	LAB 7 Radio																																																																																																							
8	9 9-21 finals	10	11	12	13	14																																																																																																		
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