

## ELECTRONICS II: 2015 Fall

● General Information

Office: IT<sub>3</sub> - 314, Phone: 950-6603,

Office Hour: Fri 3:00-5:00 PM

Home Page : <http://m80.knu.ac.kr/~SMPC/>

**Tests and Help Sessions:**

Help session for Midterm Test	
Midterm Test	
Help session for Final Exam	
Final Exam	

**Class Change:**

Original schedule	New schedule
Nov 3 <sup>rd</sup> Tue	Nov 7 <sup>th</sup> Sat: 10:30-11:45 AM IT <sub>1</sub> -116
Nov 5 <sup>th</sup> Thu	Nov 14 <sup>th</sup> Sat: 10:30-11:45 AM IT <sub>1</sub> -116

**PSpice Lab:** Oct 7<sup>th</sup>: 7:00-9:00 PM, IT<sub>2</sub>-114

**Course Outline:** Based on fundamentals covered in Electronics I, the class will address the principles and elementary applications of integrated-circuit amplifiers, differential amplifiers, operational amplifiers, frequency response, and feedback amplifiers. ***A strong emphasis will be placed on the computer-aided analysis, design, and simulation of electronics circuits using PSpice software.***

- Text: A. S. Sedra and K. C. Smith "Microelectronic Circuits," 2011, 6<sup>th</sup> Edition, Oxford.

### Tentative Course Outline

Topic	Major Contents	Week
<b><i>Building Blocks of Integrated-Circuit Amplifiers:</i></b> Chapter 6	<ul style="list-style-type: none"> <li>• MOSFET and BJT amplifier basics (review)</li> <li>• IC biasing techniques</li> <li>• CS and CE amplifiers with active loads</li> </ul>	2 weeks
<b><i>Differential and Multi-stage Amplifiers:</i></b> Chapter 7	<ul style="list-style-type: none"> <li>• MOS differential pair</li> <li>• Small-signal operation of MOS differential pair</li> <li>• BJT differential pair</li> <li>• Differential amplifiers with active load</li> </ul>	2 weeks
<b><i>Operational Amplifiers:</i></b> Chapter 2	<ul style="list-style-type: none"> <li>• Ideal operational amplifier and basic concepts</li> <li>• Inverting and non-inverting amplifiers</li> <li>• Frequency response and non-ideal characteristics</li> </ul>	2 weeks
<b><i>Midterm Test</i></b>		
	<ul style="list-style-type: none"> <li>• Large-signal operation and dc imperfections</li> <li>• Integrator and differentiator</li> </ul>	1 week
<b><i>Frequency Response:</i></b> Chapter 8	<ul style="list-style-type: none"> <li>• Basics of frequency response</li> <li>• Frequency response of amplifiers</li> </ul>	1 week

<b>Feedback Amplifiers:</b> Chapter 9	<ul style="list-style-type: none"> <li>• Concepts of feedback amplifiers</li> <li>• Forms and benefits of feedback</li> <li>• Four feedback topologies and their properties</li> <li>• Feedback amplifiers</li> <li>• Loop gain and stability</li> <li>• Frequency compensation</li> </ul>	3 weeks
<b><i>Final Exam</i></b>		

- **Grading Policy:** Midterm Test : 150 pts    Final Exam: 150 pts    Attendance: 2 pts/each  
Homework #1: 10 pts    Homework #2: 10 pts    Homework #3: 10 pts  
Project #1: 20 pts    Project #2: 20 pts    Project #3: 20 pts
- **Honor System:** Students should develop their own solutions to homework problems.  
Late homework will not be accepted. All students retaking this course will only receive 93 % of the total credit that he or she will earn in this course