

ECE 2C - Syllabus

This is the final quarter of your introduction to electrical circuits, devices, and systems. You will solidify and expand your circuit-theory “foundation” for advanced coursework in the next two years, and also expose you to some new concepts in preparation for ECE 130. We will start by reviewing essential concepts in devices and circuit theory from ECE 2A-B, and then expand on this by adding two-port network parameters, small-signal circuit-modeling of nonlinear devices, and basic signal concepts using Fourier series. We will use these techniques to analyze and design simple transistor amplifier stages. The course will conclude with some discussion of information transmission and modulation techniques used in modern communication systems. In the lab we will also construct an audio power amplifier/speaker driver, microphone pre-amplifier, active filters using op-amps, PWM modulator/demodulator, and finally put these all together to make a simple one-way analog and digital transmission link system. Our ultimate goal for the course is three-fold: 1) to round out your exposure to basic circuit theory and analyses techniques and devices; 2) to give you hands-on experience in the lab by constructing important and commonly encountered circuit modules; and 3) to have fun doing it! ECE 2C should be an interesting and hopefully entertaining culmination of all your laborious groundwork in ECE 2A-B.

- Instructor:** Bob York
ESB Rm 2215F , rayork@ece.ucsb.edu
- Office Hours:** TBA
- Class Hours:** TR 11:00:12:15 PM, Broida 1640
- Textbooks:** We are using the same texts as used in 2B, namely:
- The Analysis and Design of Linear Circuits, 5th Edition, by Thomas & Rosa
Wiley: New York 2006, ISBN: 978-0471760955
 - Microelectronic Circuits, 5th Edition, by Sedra & Smith
Oxford University Press, 2003 ISBN: 978-0195142518
- Web Site:** Nearly all course materials and important announcements will be posted at <http://my.ece.ucsb.edu/bobsclass/2C>
- Homework:** There will be weekly homework assignments, posted on the course web site and usually due on Monday at 5pm in the course homework box. *No late homeworks will be accepted. This will be rigidly enforced.*
- Laboratory:** There are weekly experiments, each must be completed in one or two weeks as noted. Labs will be completed individually by each student. A short lab report will be submitted within a week, with certain labs requiring signed certification by the TAs *in the lab* following successful completion of the experiment. The TAs will record a grade based on your lab report *and* the performance of your circuit.
- Exams:** There will *probably* be one mid-term and a comprehensive final.
- Grading:** The lab is a very important part of the ECE 2C and this will be reflected in the grading as follows (please note that this breakdown is **subject to change**):
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| Homework: | 25% |
| Progress Exam(s): | 20% |
| Laboratory: | 25% |
| Final Exam: | 30% |