

EECS 3420 Electronics II

Fall Semester 2009

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Prerequisites: Electronics I, Signals and Systems. Familiarity with large-signal properties of FETs and BJTs, circuit analysis, Laplace-domain circuits.

Text: R. Jaeger and T. Blalock, "Microelectronic Circuit Design," McGraw-Hill, 2008, 3rd edition.

Objectives:

1. Learn high-frequency characteristics of the diode, BJT, JFET and MOSFET.
2. Become proficient in incremental analysis of analog amplifier circuits.
3. Calculate amplifier input/output impedances, gains, frequency responses.
4. Understand the application of negative feedback to electronic amplifiers.
5. Gain experience in applying SPICE to electronic design.

This course is designed to apply your knowledge of math and basic science to a disciplined analytical problem solving process for analog transistor amplifiers. This course will also build your skill in the use of SPICE as a modern simulation and circuit design tool.

Material

Ch. 10 dB notation, two-port models, amplifier frequency response

Ch. 10 cont.

Ch. 13 transistor incremental modeling

Ch. 13 cont.

Ch. 14:1-4 single transistor amplifier

Ch. 14 cont. Test I

Ch. 15:3 differential amplifiers

Ch. 15:3 differential amplifiers

Ch. 16:1-9 frequency response

Ch. 16 cont

Ch. 16 cont

Ch. 16 cont Test II

Ch. 17 negative feedback

Ch. 17 negative feedback

Ch. 17 negative feedback

Grading:

Homework----- 5%

Quizzes----- 15%

Test I ----- 20%

Test II ----- 20%

Final ----- 40%

FINAL EXAM Monday, December 14, 2009, 12:30 - 2:30 pm.

Withdraw Policy: The student may withdraw (W) through October 30. The instructor cannot initiate a withdrawal or drop.

Homework: Students are expected to write out their homework solutions independently; however, it is OK to discuss problems with one another and to exchange suggestions. Homework turned in after the assignment has been discussed in class will receive no credit.

Quizzes: There will be a few unannounced quizzes throughout the semester. These will be one-sentence essays. No makeup quizzes will be given.

Tests: Tests will be announced about 1 week in advance. No makeup tests will be given. If you must miss a test, call before the test. The final exam will also count for one test missed for acceptable reasons. Tests are closed book, one page of notes.

Homework Solutions: Homework solutions will be available for discussion in class on the days that the homework is collected. In addition, I will post the homework solutions on my web site in the form of *.pdf files. To locate my web site, go to my home page at

<http://www.eecs.utoledo.edu/~rking/>

and navigate to the course page. The link will be labeled "Electronics II."

Roger King,
Prof. EECS