

Course Title	EECS 3420 - Electronics II (required)
2004 Catalog Data	Analog transistor, diode and integrated circuit analysis and design. Incremental analysis techniques, frequency response and feedback techniques. Prerequisite: EECS 3200, 3400. (3 hours lecture)
Textbook	R. Jaeger and T. Blalock, "Microelectronic Circuit Design," McGraw-Hill, 2004, 2nd edition.
Reference	None
Course Objectives	Incremental analysis of one-stage amplifiers with frequency response. High frequency BJT and FET models. The differential pair. Negative feedback and its effects at mid band on amplifier gain and impedance levels. Use of SPICE simulation in problem solving/design visualization integrated throughout course.
Prerequisites by Topic	<ol style="list-style-type: none"> 1. Large signal behavior of BJTs, FETs and diodes. 2. Laplace-domain circuit analysis.
Topics	<ol style="list-style-type: none"> 1. Amplifier concepts/frequency response/dB notation. [1 week] 2. Incremental modeling for BJT/MOSFETs [2 weeks] 3. One-stage amplifiers/resistance calculations. [1 week] 4. Differential pair/common-mode, differential-mode [2 weeks] 5. Frequency response in amplifiers, lf, hf equivalents. [4 weeks] 6. Concept of negative feedback [1 week] 7. Application of negative feedback to amplifiers. [3 weeks] 8. Tests and review. [1 week]
Class/Lab Schedule	Three 50-minute classroom sessions/week. Lab not included in course.
Professional Component	math/basic science: 0 credits engineering topics: 3 credits general education: 0 credits
EE Program Outcomes	Outcome 1 (calculus, Laplace-domain circuit analysis) Outcome 7 (use of SPICE, Bode plots, typical design and specification terminology)
CSE Program Outcomes	Not required for CSE program.
Coordinator	Dr. Roger King August 19, 2004