Handout #27
E84: Fall '07
11/19/07

E84: Midterm 2 Study Sheet

You are expected to know the following for the exam:
Anything from the first part of the class and assumed as fair game for the first midterm.
AC circuit analysis
- Phasors/Phasor diagrams
- Impedance/Admittance/Resistance/Reactance
- Leading/Lagging

Power:
- Average, Instantaneous, Max Power
- RMS/Effective values of voltage and current
- Apparent power, Power Factor (pf), Leading/Lagging pf and pf Angle
- Power factor correction
- Complex Power, Real Power, Reactive Power

Polyphase Circuits:
- 3-phase source, 3 phase load, delta connections
- Line currents, load currents
- Wattmeters

Frequency Response:
- Amplitude response, half power frequency
- Voltage Transfer Functions/Filters (by name)
- Power Gain
- Bode Plot: corner frequency
- Products of Transfer functions

Resonance, Bandwidth, Q-factor
Complex Frequency: New values for impedance – nothing else really changes
Pole-Zero plots
Finding the natural response, forced response, complete response
Systems:
- Block diagrams: integrators, summers, multipliers
- Feedback
- Laplace Transforms
  - Using them to solve differential equations
  - Using them to analyze circuits
  - Partial Fraction Expansion

Diodes: Ideal diodes and their behavior in simple circuits

Anything specifically mentioned as being excluded from the first midterm will also be excluded from this midterm. As in the last exam, while you may be asked questions that stretch your thinking and don't look like something you've seen before, they will all be solvable using the tools we've learned in class.

You are allowed one 8.5inch-x-11inch equation sheet. This sheet should only have equations. Meaning, solved circuits are not allowed on the sheet. Your sheets will be turned in with your exam.

The exam will be in class, closed book, closed notes, closed friend, open equation sheet. You can bring a calculator for doing simple arithmetic. The calculator can NOT be used for solving equations, partial fraction expansions, storing formulas, etc. If you're wondering if you're allowed to use your calculator to do something, the answer is probably no.