ECE352   Midterm # 1 Topics

NOTE: Mid term is on Friday, October 15, 2004 at 8:30 am (in class). It is closed book and closed notes. Table 8.1 and 8.2 will be given to you. TOPICS: Chapter 8 (except 8.6) and Chapter 9.1 and 9.2.

1. Laplace Transform

• Definition
• Properties
• Relationship to the (continuous-time) Fourier Transform.
• The Initial and Final Value Theorems — how to use them and when they apply.
• How to use properties and tables to compute Laplace transforms.
• How to perform partial fraction expansion.
• How to use partial fraction expansion and tables to compute inverse Laplace transforms.

2. Continuous-Time Systems (Chapters 8-9)

• Use of Laplace transforms to solve ODEs with initial conditions.
• Identifying the zero-state and zero-input components of a system response.
• Obtaining the transfer function $H(s)$ or an impulse response $h(t)$ from the ODE and conversely.
• Using Laplace Transforms to solve circuits with initial conditions.
• Stability tests. (Stable; marginally stable; unstable)
• Impulse and Step responses of first-order and second-order systems with no zeroes.