EE341.01 FINAL EXAM REVIEW FALL 1997

Time and Location: M 12/15/97 at 6:00pm in Weir 120

Materials:

1. Fourier Transform and Laplace Transform Tables (both properties and pairs) from the text will be provided.
2. You may bring one 8.5"×11" sheet of paper with writing on one side.

Topics:

1. Continuous-Time Signals
   - sketch
   - determine expression from plot
   - differentiate
   - convolve

2. Continuous-Time Systems
   - determine differential equation model for simple electrical and mechanical systems
   - properties (causal, memory, linear, time-invariant)

3. Fourier Series
   - determine coefficients
   - construct in exponential and trigonometric form
   - magnitude and phase spectra

4. Fourier Transform
   - $x(t) \leftrightarrow X(\omega)$
   - magnitude and phase spectra
   - amplitude modulation/demodulation
   - $H(\omega)$ from differential equation or from given input/output
   - characterize filters/systems from $H(\omega)$
   - $y(t)$ given $H(\omega)$ and $x(t)$

5. Laplace Transform
   - $x(t) \leftrightarrow X(s)$
   - Initial and Final Value Theorems
   - use to solve differential equations
   - conversion to Fourier Transforms

6. Transfer Functions
   - $H(s)$ from differential equation or from given input/output
   - poles, zeros, pole-zero diagram
   - block diagram representation and reduction
   - system stability
   - system response
   - motor analysis concepts/pulse-width-modulation control