Signal and Electronic Systems
ECE 317
Winter 2005

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Office hours: Monday and Wednesday: 10-11:30 a.m.

Course Overview:

1- Introduction to continuous-time signals
   a- Representation
   b- Basic signals
   c- Classification of signals
   d- Operations applied to signals

2- Introduction to systems:
   a- Classification of systems
   b- Description of linear time-invariant systems in the time domain
      I. Differential equations
      II. Impulse response

3- Laplace transform with applications to signals and systems
   a- Fundamentals
   c- The Laplace Transform of basic signals
   d- Finding the Laplace Transform of composite signals
   e- Determining the inverse Laplace Transform
   f- Applications of the Laplace Transform
      I. Solving differential equations
      II. Analysis of LTI systems (transfer function, stability, time-response, etc.)

4- The Fourier analysis of signals and Systems
   a- The Fourier series analysis (periodic signals)
b- The Fourier Transform (aperiodic signals)

5- Filter design and applications
   a) Simple passive and Active filters
   b) Basic operations applied to filters
      I. Frequency scaling
      II. Impedance scaling

6- Design of passive and active Butterworth filters
   III. Lowpass
   IV. Highpass
   V. Bandpass
   VI. Band elimination (notch)

7- Selected topics


Grading system:

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>First Mid-term test</td>
<td>20%</td>
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<tr>
<td>Second Mid-term test</td>
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<tr>
<td>Final examination</td>
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<tr>
<td>Lab assignments and project</td>
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Pass/Fail tests:

1- Prerequisite assessment test (taken during the first two weeks)
2- Final proficiency assessment test (taken during the last two weeks)

Note: Tests and exams are open book and notes. Honor Code must be strictly observed

Homework: Solutions to the homework assignments will be available to students.