George Mason University
School of Information Technology and Engineering
Department of Electrical and Computer Engineering

ECE 220  Signals & Systems I  FALL 2002
Professor Beale  Science & Technology II – 257  703-993-1596
http://ece.gmu.edu/~gbeale/ece_220/syl_220.html  gbeale@gmu.edu

OFFICE HOURS:  Monday: 3:00 – 4:15 p.m.
                 Tuesday: 9:00 – 10:15 a.m. and 1:30 – 2:45 p.m.
                 Thursday: 9:00 – 10:15 a.m. and 1:30 – 2:45 p.m.
                 Other hours by appointment only.

PREREQUISITES:  ECE 201 or or equivalent.
CO-REQUISITES:  MATH 203, MATH 214.

COURSE TEXT:  Signals and Systems, Continuous and Discrete, 4th Edition,

HONOR AND EXAM POLICY:
All students are expected to abide by the George Mason University Honor Code. Sharing of ideas and
comparison of answers on homework is acceptable, but copied work will not be accepted. All tests and the
final exam will be closed book and closed notes unless specifically stated otherwise by the Instructor. All
work must be your own. Any reasonable suspicion of an honor violation will be reported.

Students must arrive in class within 15 minutes of the scheduled starting time for all tests and exams. Students arriving later than 15 minutes after the scheduled starting time will not be allowed to take the
test/exam and will receive a grade of 0 for the test/exam.

OBJECTIVES:
1. Introduce the students to the basic types of signals and systems encountered in engineering and to the
   important properties of these systems.
2. Introduce the students to methods of characterizing and analyzing continuous-time signals and systems
   in the frequency domain.
3. Introduce the students to methods of characterizing and analyzing continuous-time signals and systems
   in the time domain.

GRADING:  2 Tests .......................................................... 40%
           Homework ......................................................... 10%
           Labs ................................................................. 20%
           Final Exam ....................................................... 30%

The lower test grade will count 16%, and the higher test grade will count 24%. Late homework will not
be accepted. The 2 lowest homework grades will be dropped in determining a student’s homework average.

A student requesting a grade change for a homework or test problem must provide me with the following
information in writing within two class periods after the work is returned: (1) the number(s) of the problem(s)
to be considered; (2) a description of your mistakes made in the problem(s); and (3) the reason that you feel
that you should receive additional points for the work.
COURSE OUTLINE

Chapter 1  Introduction to signals and systems, properties of signals and systems, special types of input signals - 2 class periods.

Chapter 3  Periodic signals and their representation, trigonometric and exponential Fourier series, line frequency spectra - 4 class periods.

Chapter 4  Aperiodic signals, the Fourier transform, steady-state frequency response, filtering of signals - 3 class periods.

Chapter 5  Properties and theorems of the Laplace transform, partial fraction expansion - 4 class periods.

Chapter 6  Laplace transform applications, transfer functions and frequency response, Bode magnitude and phase plots, block diagrams - 5 class periods.

Chapter 2  Input/output analysis of signals and systems in the time domain, the convolution integral and the impulse response, stability of linear systems - 4 class periods.

Chapter 7  State space analysis of systems, the concept of state, the form of state equations, writing state equations, solving state equations - 3 class periods.

TEST SCHEDULE:

<table>
<thead>
<tr>
<th>Test</th>
<th>Date</th>
<th>Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>Thursday, September 19</td>
<td>1, 3</td>
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<tr>
<td>Test 2</td>
<td>Thursday, November 7</td>
<td>4, 5, 6</td>
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<tr>
<td>Final Exam</td>
<td>Tuesday, December 17</td>
<td>Comprehensive, with 2, 7 emphasized</td>
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1:30 – 4:15 p.m.

Last Day to Drop without Dean’s Permission: Friday, September 27

No lecture class Tuesday, October 15, due to Columbus Day Recess!!

Labs scheduled for Monday, October 14 will be held on Tuesday, October 15.

References