Syllabus

ECE 201: Introduction to Signal Analysis
Department of Electrical and Computer Engineering
George Mason University
Spring 2010

Instructor: Dr. Joseph L. Hibey
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Office: Engineering Building, Room 3707, 3708
Phone: 703-993-1569 (ECE office)
Office Hours: Tuesday 3:00-4:00 pm
Thursday 3:00-4:00 pm

Required Text: DSP First – A Multimedia Approach

Lab: Meets once a week, and designed to complement course material.

Course TA:

Homework: Assigned weekly and due the following week. Working in small groups is encouraged. Will comprise a maximum of 20% of final grade, where the actual percentage will be weighted by performance on two in-class exams.

Exams: One midterm exam and one final exam will be administered in class. Each is closed-book, closed-notes. Students unable to attend on the announced date because of illness, business travel, or an emergency, must notify instructor before the test and provide written justification (such as a doctor’s note, a copy of travel documents, etc.).

Grading: Lab: 20%
Homework: 20%
Midterm exam: 30%
Final exam: 30%
Tentative Class Schedule

Jan. 19: Introduction to DSP; Sinusoids; sampling and plotting using MATLAB

Jan. 26: Complex exponentials; phasors

Feb. 2: Spectrum representation; periodic waveforms

Feb. 9: Sampling and aliasing; interpolation

Feb. 16: FIR filters; impulse response; convolution

Feb. 23: Linear time-invariant (LTI) systems; superposition

Mar. 2: Midterm Exam

Mar. 8: Spring Break

Mar. 16: Frequency response; steady-state response; transient response

Mar. 23: Plotting frequency response; lowpass filters; cascaded systems

Mar. 30: z-Transforms; block diagrams

Apr. 6: System functions; poles and zeros; running-sum filter

Apr. 13: IIR filters; step response; block diagram structures

Apr. 20: BIBO stability

Apr. 27: Inverse z-transform and partial fractions; second-order filters

May 6: Final Exam