Syllabus EEL 5525

Instructor: Dr. Fred J. Taylor, 441NEB, fit@ece.ufl.edu
Time and Place: MWF, 4th period 10:40-11:30 AM, Lar 330.
Text: Notes: available on-line.
Class Web site: lss.at.ufl.edu.
TA: tba

The objective of the course is to provide a foundational understanding of digital signal processing (DSP) theory and practice as well as develop requisite analysis and synthesis skills. Studies will be conducted in both time and frequency domains.

Topical Outline

**Part I: Introduction to Discrete-Time Signals and Systems**
- Introduction to DSP, linear systems, sampling theorem, aliasing, quantization, signal generation.

**Part II: Discrete-Time Signal and System Representation**
- z-transform, inverse z-transform.

**Part III: Discrete-Time Fourier Transform**
- Fourier transforms, discrete-time Fourier transforms, DFT, data windows, FFT ordering.

**Part IV: Linear Systems**
- Convolution, system models, gain formulas, state-variable methods.

**Part V: Introduction to Digital Filters**
- Introduction to FIRs and IIRs.

**Part VII: Introduction to Multi-rate Systems**
- Introduction to multi-rate systems.

**Assessment (tentative)**
- 4 in-class hourly examinations. (no final exam planned at this time)
Most lectures will be accompanied by a Challenge (homework) problem that is to be submitted to SAKAI for auto-grading on or before 10:00 AM the day the response is due.

MATLAB enabled projects will be graded acceptable or unacceptable in a manner to be determined (tentatively 4 projects). They will result in bonus points.

Semester Grade: Tentatively

Score: (95%) Best 3 of 4 hourly exams + (5%) Challenge Average + (4%) Projects (104 points)

You will have a guaranteed letter grade assigned before Exam #4 based on 3 hourly exams, Challenge, and project outcome.

Resources

- Lesson material (on-line)
- PowerPoint (in-class presentation and archived as EDGE video recordings)
- Internet searches (general)
- Interesting Web site: www.ti.com (training, webcasts, etc.)
- MATLAB on-line tutorials
- Free trade newsletter (subscribe): http://www.BDTI.com/dspinsider/dspinsider.html
- MIT Open Courseware