Introduction to Digital Signal Processing

ECES-352

4 credits
Tuesday/Thursday: 12:30 pm - 01:50pm
Friday Lab: 2-3:50

Instructor:

Dr. Gail Rosen
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Office hours: Thursday 8:30-10:30AM

TA:

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Office Hours: Monday 2-4PM

Course Overview:

This course Covers discrete-time signals, analog-digital conversion, time and frequency domain analysis of discrete-time systems, analysis using Z-transform, introduction to digital filters, discrete-time Fourier transform, Discrete Fourier Transform (DFT), and Fast Fourier Transform (FFT).

Course Reading Materials

Lectures:
DSP First (2nd ed.)
By James H. McClellan, Ronald Schafer, and Mark Yoder
Prentice Hall©2016

Grading Policy:

All homeworks and labs are due at the beginning of class. Any homework/lab received after that time will be given a 0.

30 pts homework (9 homeworks)
20 pts midterm exam (2 exams; 10 each)
30 pts laboratories (9 laboratory activities)
20 pts final exam (date & location TBA)

Specifics on Assignments:

Homeworks are due (**Tuesday/12:30)** by ONLINE submission (blackboard)

Midterm and Final exam will be closed book exams. (One note sheet allowed)

The 9 labs will by due one week after assigned by ONLINE submission by **Friday @ 2PM**

General Code of Conduct:

Students are expected to refrain from disruptive activity during class. Cell phones must be turned to vibrate (read below). Text messaging and phone calls will are not allowed (with one exception, as outlined below). Use of computers and electronic devices must be limited to note-taking or in-class computational exercises. Students must also refrain from talking out of turn and may asked to leave the class should they fail to abide by these rules.

Attendance Policy

Absences from exams must be excusable, resulting from a circumstance that is beyond the student's control (e.g. illness, family crisis, necessary travel). You must provide us with a written statement (e-mail or note) regarding the reason for your absence. Students missing classes should consult an instructor to inquire about missed assignments (i.e. in-class activities).

Policy on Missed Exams and Deadlines:

I will not give make-up assignments or exams. As such, excusable absences or missed deadlines (see above) will require that we adjust the point value from your other assignments and exams. For example, if you did not take exam 2 (worth 15 course

points) due to a legitimate excuse, your final grade would be calculated out of 85 total course points instead of 100.

Policy on Academic Dishonesty

For Drexel's policy on academic dishonesty, visit:
http://www.drexel.edu/provost/policies/academic_dishonesty.asp

Unless group/team activity is required, it is assumed that ALL work be solely that of the individual student whose name is associated with the work. ANY form of cheating (copying, plagiarizing, using another's work, permitting another student to use your work, falsifying data, etc.) will not be tolerated and can result in immediate disciplinary action, including the possibility of dismissal.

Students who violate these policies (e.g. through cheating or plagiarism) may receive a 0 on the relevant assignment or, in more serious cases, may receive an F for the course. Furthermore, students in violation of these policies may be sent before the Drexel Office of Judicial Affairs:
http://www.drexel.edu/judicial/default.html

Students with Disabilities

Students with disabilities requesting accommodations and services at Drexel University (e.g. extra time for exams), need to present a current accommodation verification letter (AVL) to the professor before accommodations can be made. This will need to be done 2 weeks in advance of the first exam (by Jan. 21). AVL's are issued by the Office of Disability Services (ODS). For additional information, contact ODS at 3201 Arch St., Street, Suite 210, Philadelphia, PA 19104, ***215.895.1401*** (V), or ***215.895.2299*** (TTY). Or visit their website at *www.drexel.edu/ods*.

COURSE SCHEDULE

Week of	Lecture topic	Assignments & Readings **Homeworks are due at the beginning of class on Tuesday of that week and Labs are due at the beginning of class on the Friday of that week (and there is a lab and homework every week)**
Jan. 7	Sinusoids and Complex Exponentials	M&S Chapter 2 (Lab 1: Intro to Matlab) **Add/drop deadline is Jan. 13**
Jan. 14	Sinusoids II/Spectrum Representation	M&S Chapter 3 (Lab 2: Intro Complex Exponentials)
Jan. 21	Sampling and Aliasing	M&S Chapter 4 (Lab 3: Bioinformatics)
Jan. 28	**EXAM I** FIR Filters I	M&S Chapter 5 (Lab 4: AM and FM Signals Lab)
Feb. 4	FIR Filters II	M&S Chapter 5 (Lab 5: Music Signals Lab)
Feb. 11	Frequency Response of FIR Filters	M&S Chapter 6 (Lab 6: Images Lab)
Feb. 18	z-Transforms	M&S Chapter 9 (Lab 7: FIR Filtering of images lab) **Withdrawal deadline is Feb. 22**
Feb. 25	**EXAM II** z-Transforms II	M&S Chapter 9 (Lab 8: Frequency Response: Bandpass & Nulling Filters)
March 4	IIR Filters I	M&S Chapter 10 (Lab 9: Everyday Sinusoidal Signals)
March 11	IIR Filters II	M&S Chapter 10 (Lab: Help Session/Review)
March 18	*Final Exam Week*	

Final Exam: TBA