Instructor: Zaher M. Kassas

Office: RFM 5248
Phone: 512-245-1984
Email: zkassas@ieee.org
Web Page: Available through TRACS
Office Hours: Mon., 5:00pm–6:30 pm, and by appointment
Teaching Assistant: Kyle S. Kastner, kk1236@txstate.edu
TA Office Hours: TBA

Lectures: Mon., 6:30–9:30pm, RFM 5242

Text: B. Porat, *A Course in Digital Signal Processing*, Wiley, 1996.

Suggested References:

- J.G. Proakis and D.G. Manolakis, *Digital Signal Processing*, Fourth Edition, Prentice Hall, 2006
- A.V. Oppenheim and R.W. Schafer, *Discrete-Time Signal Processing*, Third Edition, Prentice Hall, 2009
- S. Mitra, *Digital Signal Processing*, Fourth Edition, McGraw-Hill, 2010
- R.E. Ziemer, W.H. Tranter, and D.R. Fannin, *Signals and Systems: Continuous and Discrete*, Fourth Edition, Prentice Hall, 2001

Prerequisites: EE3370 with a minimum grade of C.

Course Objective: To develop an understanding of the theory and applications of discrete-time signals and systems. Topics covered include: sampling and reconstruction, Discrete Fourier Transforms (DFTs), spectral analysis and windowing, $\mathcal{Z}$-Transforms and difference equations, finite-impulse response (FIR) filters, and infinite-impulse response (IIR) filters.

Homework Assignments: Homework assignments will be assigned on a regular basis and will be due at the beginning of the lecture. Late submissions will **not be accepted** (unless it is the result of an officially excused absence). You may discuss homework problems with other students, but you are **not** allowed to copy from others. If you decide to discuss your solutions with other student(s), you must provide the name(s) of the students with which you have worked. University disciplinary procedure will be invoked if any form of cheating is detected. The lowest homework assignment grade will be dropped.

Exams: There will be two midterm exams and a final. The midterm exams are scheduled during class time as indicated in the course calendar. Missed exams may **not** be made up (unless it is the result of an officially excused absence).

Attendance and Course Policy: Attendance is expected. You are responsible for material covered in class and in the reading assignments.

Software Packages: Some of the topics introduced in class will be demonstrated through software packages with built-in signal processing routines. We will be adopting the MATLAB and LabVIEW environments for this purpose.

Grading:

Homework Assignments	20%
Project	10%
Midterm Exams	40%
Final Exam	30%

Final Grade Assignment:

A	90–100 %
B	80–89 %
C	70–79 %
D	60–69 %
F	0–59 %

Tentative Topical Coverage:

Week	Date	Topics	Chapters
1	01/24	Introduction Review of frequency-domain analysis	1 2
2	01/31	Review of frequency-domain analysis Sampling and Reconstruction	2 3
3	02/07	Sampling and Reconstruction Discrete Fourier Transform	3 4
4	02/14	Discrete Fourier Transform	4
5	02/21	**Midterm 1**	
6	02/28	Practical Signal Analysis: Windowing	6
7	03/07	Difference Equations and the $\mathcal{Z}$-Transform	7
8	03/14	**Spring Break**	
9	03/21	Introduction to Digital Filters	8
10	03/28	Introduction to Digital Filters	8
11	04/04	**Midterm 2**	
12	04/11	Finite Impulse Response Filters	9
13	04/18	Finite Impulse Response Filters	9
14	04/25	Infinite Impulse Response Filters	10
15	05/02	Infinite Impulse Response Filters Advanced Topics	10 TBD
16	TBD	**Final Exam**	