

ECE-439, Fall 2008

Introduction to DSP

Overview

Course Catalog Description:

Review of Fourier series, Fourier transform, and Laplace transform. Development of Z transform, discrete Fourier transform, and FFT. Analysis and design of both non-recursive and recursive digital filters. Computer projects included.

Prerequisites: ECE-314 and ECE-340, working knowledge of MATLAB.

Textbook:

(a) Sam D. Stearns, "Digital Signal Processing with Examples in MATLAB," CRC Press, 2003.

(b) Schaum's Outline of Digital Signal Processing, Hayes, McGraw-Hill.

Reference:

A.V.Oppenheim and R.W.Schafer, "Discrete-Time Signal Processing," Prentice Hall Inc., Upper Saddle River, New Jersey.

Class Goals: After the completion of this course, the student should be able to understand the basic techniques of discrete time signal and system analysis and issues associated with both FIR and IIR digital filter design.

Course Coordinator: Professor Balu Santhanam.

ABET Objectives addressed:

- (1) A good grasp of fundamentals of DSP (A),
- (2) Application of theoretical knowledge to engineering design (C),
- (3) Ability to use MATLAB for the design of digital filters (K).
- (4) A sound preparation for the graduate level DSP class (I)