EE-2150
Introduction to Signal Processing

Curricular Designation: EE: required  CpE: required

Catalog Description:
EE 2150 - Introduction to Signal Processing Introduces the mathematical modeling techniques used in the design and analysis of analog and digital signal-processing systems. Topics include analog and digital signal processing, spectral representations, filtering, frequency response, and the Fourier and Z-transforms. Applications include communication, control, audio, video, and image processing systems. Credits: 3.0  Lec-Rec-Lab: (3-0-0)  Semesters Offered: Fall Spring Summer  Pre-requisites: (MA 2160 or MA 2150) and (CS 1121 or CS 1131)

Textbooks(s) and/or Other Required Materials:
DSP First - A Multimedia Approach, McClellan, Schafer, and Yoder, Prentice-Hall, 1999

Prerequisites by Topic:
1. Familiarity with complex numbers and complex number arithmetic.
2. Familiarity with basic calculus.

Course Objectives:
1. Introduction to the spectral representation of analog and discrete sinusoids.
2. Introduction to FIR filters and their response by convolution.
3. Introduction to the frequency response of FIR and IIR filters.
4. Exposure to the z-transform and its use in the analysis of FIR filters.
Topics Covered:
1. Analog sinusoids and their spectral representation.
2. Sampling and the spectral representation of discrete sinusoids.
3. FIR filters and their response by convolution.
7. Pole-zero diagrams.

Relationship of Course to Program Objectives (See UPAC SOP, Tables 1 and 2):
- CpE: Outcome: a, p, n, s via topic(s): (all)
- EE: Outcome: a, m via topic(s): (all)

Contribution of Course to Meeting the Professional Component:
- EE: Engineering Topics
- CpE: Engineering Topics

Class/Laboratory Schedule (note: 1 hour = 50 minutes):
Lecture: 45 hours = 3 hours/week for 15 weeks

Prepared by:
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