CALIFORNIA STATE UNIVERSITY, CHICO
DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

EECE 365 Signals, Systems and Transforms (4 units)

Instructor: *Dr. Adel A. Ghandakly   OCNL 308*

Course Description: Modeling and analysis of Signals and Systems both continuous and discrete, in the time and frequency domains. Topics include theory and application of Fourier series, Fourier transforms, Parseval's Theorem and the Convolution, Sampling Theorem, Z transform, discrete Fourier Transform and FFT. Introduction to probability models and concept of probability theory.

Prerequisites: EECE 311, MATH 260

Course Objectives: Use of periodic signals and Fourier series to analyze circuits, general linear system theory for continuous-time signals and systems using convolution and Fourier Transform, difference equations and discrete-time signals, analyze discrete-time systems using convolution and the z-transform, effect of sampling on the frequency response of a signal, the Fast Fourier Transform (FFT) algorithm and its relationship to other transforms, probability models and the concept of probability theory in Electrical and Computer Engineering

Textbook: "Signals & Systems, Continuous and Discrete", 4th Edition, Ziemer, Tranter & Fannin, Pearson Education (Prentice Hall).

Topics:
1. Signals and systems representation.
2. Differential equation and difference equation.
3. Convolution.
4. System Modeling, Transfer Functions and Stability.
5. System Frequency Response and Introduction to Ideal filters.
6. Discrete-time systems and the Z-transform.
7. Fourier transforms.
8. Fourier analysis of discrete systems: An introduction.
9. Fourier series and its applications.
10. Probability models and concept of probability theory
11. Computer simulation using MATLAB.