

EECE 365: Continuous-Time Signals and Transforms (4 Units)

Prerequisites: EECE 311, MATH 260

Catalog Data: Theory and application of Fourier series, Fourier transforms, and Laplace transforms. Parseval's Theorem, convolution and transfer function. System modeling and simulation. Topics from Linear algebra, and introduction to partial differential equations.

Course Objectives: This course is designed to:

- Teach the use of periodic signals and Fourier series to analyze circuits
- Explain the general linear system theory for continuous-time signals using convolution, and the Fourier and Laplace transforms
- Explain the nature and occurrence of difference equations and discrete-time signals
- Demonstrate how to analyze discrete-time systems using convolution and the z-transform
- Explain the effect of sampling on frequency response of a signal
- Teach the fast Fourier transform (FFT) algorithm and its relationship to other transforms

Class Schedule: T , Th 9:00 – 10:50 AM

Textbook:

Signals and Systems Continuous and Discrete, R.E. Ziemer, W. H. Tranter and D. R. Fannin, Prentice Hall

Topics Covered:

- Signal and system modeling concept
- Fourier Series
- Fourier Transform and its applications
- Laplace Transform and its applications
- State-Variable Techniques
- Discrete-Time Signals and Systems
- Discrete Fourier Transform and Fast Fourier Transform

Grading Policy:

Homework: 20%
Exam I: 26%
Exam II: 26%
Final Exam: 28%

ABET Requirements: Refer to the department webpage of outcome on this course.