

**The University of Texas at Tyler**  
**Department of Electrical Engineering**

**Course: EENG 4311 – Signals and Systems**

**Syllabus**

**Catalog Description:**

Types of signals; types of systems; properties of systems; convolution; Fourier series, Fourier transforms; Laplace transforms; Difference equations; Z-transform; Discrete-time systems; applications and design concepts.

**Prerequisites:**

EENG 3305 Linear Circuits Analysis II, EENG 2101 Matlab for Engineers

**Credits:**

( 3 hours lecture, 0 hours laboratory per week )

**Text(s):**

B. P. Lathi, Linear Systems and Signals, 2<sup>nd</sup> edition, Oxford, 2005

**Additional Material:**

Class Notes

**Course Coordinator:**

David Hoe, Assistant Professor, Electrical Engineering

**Topics Covered:** (paragraph of topics separated by semicolons)

Signal and System Modeling; Time domain modeling of systems; Fourier Series; Fourier Transform and its applications; The Laplace Transform; Applications of the Laplace Transform; Z-Transform

**Evaluation Methods:** (only items in dark print apply):

- 1. Examinations / Quizzes**
- 2. Homework**
- 3. Report**
- 4. Computer Programming**
5. Project
6. Presentation
7. Course Participation
8. Peer Review

**Course Objectives**<sup>1</sup>: By the end of this course students will be able to:

1. Model linear systems and composite signals [1,2,4]
2. Model systems using time domain techniques [1,2,4]
3. Apply the Fourier Series to signals [1,2,4]
4. Apply the Fourier Transform to signals [1,2,4]
5. Use the Laplace Transform to model systems [1,2,4]
6. Identify applications of the Laplace Transform [1,2,4]
7. Analyze Discrete Time Signals and Systems [1,2,4]

<sup>1</sup>Numbers in brackets refer to method(s) used to evaluate the course objective.

Relationship to Program Outcomes (only items in dark print apply)<sup>2</sup>: This course supports the following Electrical Engineering Program Outcomes, which state that our students will:

1. have the ability to apply knowledge of the fundamentals of mathematics, science, and engineering; [1-5, 7]
2. have the ability to use modern engineering tools and techniques in the practice of electrical engineering; [1-7]
3. have the ability to analyze electrical circuits, devices, and systems; [1-7]
4. have the ability to design electrical circuits, devices, and systems to meet application requirements; [2, 5, 6]
5. have the ability to design and conduct experiments, and analyze and interpret experimental results; [4, 6]
6. have the ability to identify, formulate, and solve problems in the practice of electrical engineering using appropriate theoretical and experimental methods; [1-7]
7. have effective written, visual, and oral communication skills;
8. possess an educational background to understand the global context in which engineering is practiced, including:
  - a. knowledge of contemporary issues related to science and engineering;
  - b. the impact of engineering on society;
  - c. the role of ethics in the practice of engineering;
9. have the ability to contribute effectively as members of multi-disciplinary engineering teams;
10. have a recognition of the need for and ability to pursue continued learning throughout their professional careers;

<sup>2</sup>Numbers in brackets refer to course objective(s) that address the Program Outcome.

Contribution to Meeting Professional Component: (in semester hours)

Mathematics and Basic Sciences:	0	hours
Engineering Sciences and Design:	3	hours
General Education Component:	0	hours

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Date:

14 Jan 2007

Date:

7 Jan 2008

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