Course Syllabus: Signals and Systems

Course Information

Class Number:	24039
Course Number:	004586
Class Section:	EE3302.001.22S
Course Title:	Signals and Systems
Term:	2022 Spring
Class Schedule:	Tu/Th 2:30-3:45pm
Class Location:	FO 1.502

Professor Contact Information

Name:	Jae Mo Park, PhD
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Office Location:	ECSN 4.904
Office Hours:	Thursday 4:00–5:00 pm

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Pre-requisite: ENGR 3300

Course Description

This course will present the basic concepts and applications of signals and systems. The modeling of these signals and systems requires basic knowledge in mathematics (calculus). The course will deal with continuous-time and discrete-time signals/systems.

Student Learning Objectives/Outcomes

By the end of this course students are expected to be able to:

- Apply the convolution theorem for continuous-time and discrete-time signals
- Evaluate the Fourier Series of periodic signals
- Determine the Fourier Transform of energy signals
- Make use of Fourier Transform properties
- Convert a continuous time signal to the discrete time domain and reconstruct using the sampling theorem

Textbooks and Materials

Lecture notes (will be available from e-learning prior to each class)
Optional textbook: Signals & Systems 2nd ed. (Alan V. Oppenheim, Alan S. Willsky), ISBN-13: 978-0138147570

Assignments & Academic Calendar

Homework: Weekly homework assignments will be posted on *e-Learning*. Working through these assignments will help you to be prepared for exams. You are encouraged to work and discuss in groups in doing the homework problems but you need to submit each set of assignments individually and mention the names of your team-mates if there are any.

Exams: There are two mid-term exams and a final exam.

Academic Calendar: The course has three sections. The first section looks at describing signals and linear systems in the time domain, which is the most intuitive perspective for most people. The second part introduces the idea of representing signals in the frequency domain using the Fourier series and Fourier transform. This is a powerful perspective that greatly simplifies the understanding of signal processing. This will be used to show how signals can be represented as a sequence of samples, and still be perfectly reconstructed, given reasonable conditions. The third section of the course will show how this works.

Tentative Schedule

Section 1: Signals and Linear Systems in the Time Domain (Ch1 & 2)	Jan/18 – Feb/15
Mid-Term Exam I: Feb/17 Th	
Section 2: Continuous Time Signals in the Frequency Domain (Ch3, 4 & 7)	Feb/22 – Mar/29
Spring Break**:** Mar/15, Mar/17	
Mid-Term Exam II: March/31	
Section 3: Discrete Time Signals in the Frequency Domain (Ch5,10)	Apr/5 – May/5
Final Exam: TBD between May/9 – May/13	

Grading Policy

The evaluation of the student's work is the instructor's professional judgment and not subject to negotiation. Final grade will be determined by homework assignments (30%), exams - midterm I (20%), midterm II (20%), and final exam (30%).

Course & Instructor Policies

- ✓ No makeup exams will be allowed.
- ✓ Online submissions to the eLearning must be in **PDF** format.
- ✓ All assignments will be due on the assigned dates. No credit will be given to late submissions.

COVID-19 Guidelines and Resources

The information contained in the following link lists the University's COVID-19 resources for students and instructors of record. Please see http://go.utdallas.edu/syllabus-policies.

The instructor may record meetings of this course. Any recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.