



Lahore University of Management Sciences

EE 310 – Signals and Systems Spring 2018

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Course URL (if any)	https://lms.lums.edu.pk/

Course Basics				
Credit Hours	3			
Lecture(s)	Nbr of Lec(s) Per Week	2	Duration	75 minutes
Recitation/Lab (per week)	Nbr of Lec(s) Per Week	-	Duration	-

Course Distribution	
Core	Core Course for EE Majors
Elective	May be Elective for others
Open for Student Category	Anyone with the required pre-requisite
Close for Student Category	Anyone not fulfilling the required pre-requisite

COURSE DESCRIPTION
This course introduces mathematical modeling techniques used in the study of signals and systems. Topics include sinusoids and periodic signals, spectrum of signals, sampling, frequency response, convolution and filtering, Fourier, Laplace and Z-transforms.

COURSE PREREQUISITE(S)	
<ul style="list-style-type: none">••	Enforced: Calculus II (MATH 102) Recommended (Co-Requisite): Circuits II

Grading Breakup and Policy (Tentative)
Homework : 10% (4-5) Quiz: 20% (5-6) Midterm Examination:30% Final Examination:40%



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Course Learning Outcomes

CLO1 CLO2 CLO3	By the end of the course, the students should be able to
	describe basic mathematical concepts as they apply to signals and systems analysis
	mathematically describe and analyze signals and linear time-invariant systems in the time domain
	mathematically describe and analyze signals and linear time-invariant systems in the transform domain

Relation to EE Program Outcomes

EE-310 CLOs	Related PLOs	Level of Learning	Teaching Methods	CLO Attainment checked in
CLO1	PLO1	Cog-3	Instruction, Homework	Midterm, Final
CLO2	PLO1	Cog-4	Instruction, Homework	Midterm, Final
CLO3	PLO2	Cog-4	Instruction, Homework	Midterm, Final

Examination Detail (Tentative)

Midterm Exam	Yes/No: Yes Combine Separate: Combined Duration: 3 hours Preferred Date: During the Midweek Exam Specifications: Closed book closed notes/Calculators Allowed/
Final Exam	Yes/No: Yes Combine Separate: Combined Duration: 3 hours Date: Exam Specifications: Closed book, closed notes/Calculators Allowed/ Formula sheet would be provided

Textbook(s)/Supplementary Readings

Text: Signals and Systems by Alan V. Oppenheim, Alan S. Willsky with S. Hamid Nawab
 References: Signals and Systems by Simon Hykin & Linear Systems and Signals by B. P. Lathi

COURSE OVERVIEW

Lectures	Topics	Recommended Readings	Related CLOs
1-4	Introduction to signals and system	Ch1.	CLO 1,2
5-8	Linear time invariant systems	Ch. 2	CLO 1,2
9-12	Fourier Series	Ch. 3	CLO 1,2,3
13-16	Continuous-time Fourier transform	Ch. 4	CLO 1,3
17-19	Discrete-time Fourier transform	Ch. 5	CLO 1,3
20	Sampling	Ch. 7 (7.1 only)	CLO 1,2,3
21-22	Time and Frequency Characterization of first and second order systems	Ch. 6 (6.5 and 6.6)	CLO 1,2,3
23-25	Laplace Transform	Ch. 9 (9.1, 9.2 and 9.4)	CLO 1,3
26-27	Z- transform	Ch. 10 (10.1, 10.2 and 10.4)	CLO 1,3