Department of Electrical Engineering	
System &Signal Analysis (63373)	
Total Credits	3
major compulsory	
Prerequisites	P1 : Electrical Circuits II (63212)

Course Contents

Continuous-time signals and systems, Continuous-time linear time-invariant systems, impulse response, convolution, system properties, relation to differential equations, Fourier series, Fourier transform, Applications involving the Fourier transform, Sampling, Discrete-time signals and systems, Discrete-time linear time-invariant systems, Fourier analysis of discrete-time signals/systems, DTFT, Z-transforms

Intended Learning Outcomes (ILO's)		Student Outcomes (SO's)	Contribution
1	Student will be able to demonstrate and understand the basics of CT and DT of signals and systems, fundamentals and properties, properties of LTI system, singularity functions, difference and differential equations	E	20 %
2	Student will be able to demonstrate and understand of Fourier series ,Fourier transform for CT and DT signals , convolution and the basics of filtering	A	50 %
3	Student will be able to use Bode, FT, DFT, Fourier series, Z-transform and Matlab-based methods to analysis CT and DT signals and systems	E	30 %

Textbook and/ or Refrences

Signals &systems , 2nd edition by A. V. Oppenheim, A. S. Willsky Signals &Systems Continuous and Discrete, 4th edition by R. E. Ziemer

Assessment Criteria	Percent (%)
First Exam	20 %
Second Exam	20 %
Homeworks	10 %
Final Exam	50 %

Course Plan

Week	Topic
1	Basic CT and DT signal and systems, system properties
2	Elementary complex signals, Unit impulse and unit step function
3	Periodic signals, fundamental properties of systems. The convolution sum and integral
4	Properties of LTI systems
5	Difference and differential equations and singularity functions
6	Fourier series analysis of CT and DT signals, properties of CT and DT Fourier series
7	MIDTERM EXAM 1
8	Fourier series and LTI systems, filtering
9	CT Fourier transform representation of periodic and periodic signals
10	Properties of the CT Fourier transform
11	Basic fourier transform pairs
12	DT Fourier transform
13	MIDTERM EXAM 2

14	Representation of aperiodic and periodic signals, Properties of the DT Fourier transform, basic DFT pairs
15	Z- Transform
16	Final Exam