

Satyug Darshan Institute of Engineering and Technology					
Lesson Plan / Teaching Plan / Lecture Plan with Progress : CSE-A 5th Semester : 2025-26					
Course Name (Code) :ESC-501					
Teacher Centric Approaches => TC-1 (Chalk and Talk); TC-2 (PPT); TC-3 (Video Lectures)Learner (Student) Centric Approaches => LC-1 (Assignment); LC-2 (Mini Project); LC-3 (Quiz); LC-4 (Seminar on recent trends); LC-5 (Group Task); Any other					
Topics / lectures are arranged in sequence - same - as to be taught in the class. Maintain data related to "Date" in its hard copy.					
S. No.	Lect No	Topic Description	Teaching Pedagogy	Refer Material	Remarks, if
1	1	Introduction			
2	2	Signals and systems as seen in everyday life, and in various branches of engineering and science.	TC-1	R1,R2	
3	3	Signal properties: periodicity, for CTS	TC-1	R1,R2	
4	4	Signal properties: periodicity, for DTS	TC-1	R1,R2	
5	5	Signal properties: , absolute integrability, deterministic and stochastic character.	TC-1	R1,R2	
6	6	Some special signals of importance: the unit step, the unit impulse, the sinusoid, the complex exponential, for CTS	TC-1	R1,R2	
7	7	Some special signals of importance: the unit step, the unit impulse, the sinusoid, the complex exponential, for DTS	TC-1	R1,R2	
8	8	some special time-limited signals; continuous and discrete time signals, continuous and discrete amplitude signals.	TC-1	R1,R2	
9	9	System properties: linearity: additivity and homogeneity,	TC-1	R1,R2	
10	10	System properties: shift-invariance, causality, Examples.	TC-1	R1,R2	
11	11	System properties: stability, realizability. Examples. Impulse response and step response,	TC-1	R1,R2	
12	12	convolution, in CTS	TC-1	R1,R2	
13	13	convolution, in DTS	TC-1	R1,R2	
14	14	input-output behavior with aperiodic convergent inputs, cascade interconnections.	TC-1	R1,R2	
15	15	Characterization of causality and stability of LTI systems.	TC-1	R1,R2	
16	16	System representation through differential equations and difference equations.	TC-1	R1,R2	
17	17	System representation through differential equations and difference equations.	TC-1	R1,R2	
18	18	State-space Representation of systems. State-Space Analysis, Multi-input, multi-output representation.	TC-1	R1,R2	
19	19	State Transition Matrix and its Role	TC-1	R1,R2	
20	20	Periodic inputs to an LTI system, the notion of a frequency response and its relation to the impulse response.	TC-1	R1,R2	
21	21	Periodic inputs to an LTI system, the notion of a frequency response and its relation to the impulse response.	TC-1	R1,R2	
22	22	Fourier series representation of periodic signals, Waveform Symmetries,	TC-1	R1,R2	
23	23	Fourier series representation of periodic signals, Waveform Symmetries,	TC-1	R1,R2	
24	24	Calculation of Fourier Coefficients.	TC-1	R1,R2	
25	25	Calculation of Fourier Coefficients.	TC-1	R1,R2	
26	26	Fourier Transform,	TC-1	R1,R2	
27	27	Fourier Transform,	TC-1	R1,R2	
28	28	convolution/multiplication and their effect in the frequency domain,	TC-1	R1,R2	
29	29	magnitude and phase response, Fourier domain duality.	TC-1	R1,R2	
30	30	The DiscreteTime Fourier Transform (DTFT) and the Discrete Fourier Transform (DFT).	TC-1	R1,R2	
31	31	The DiscreteTime Fourier Transform (DTFT) and the Discrete Fourier Transform (DFT).	TC-1	R1,R2	
32	32	Parseval's Theorem.	TC-1	R1,R2	
33	33	Review of the Laplace Transform for continuous time signals and systems, system functions,	TC-1	R1,R2	
34	34	poles and zeros of system functions and signals	TC-1	R1,R2	
35	35	poles and zeros of system functions and signals,	TC-1	R1,R2	
36	36	Laplace domain analysis, solution to differential equations and system behavior. system functions,	TC-1	R1,R2	
37	37	The z-Transform for discrete time signals and systems,	TC-1	R1,R2	
38	38	poles and zeros of systems and sequences, z-domain analysis.	TC-1	R1,R2	
39	39	Inverse ZT	TC-1	R1,R2	
40	40	Inverse ZT	TC-1	R1,R2	
41	41	The Sampling Theorem and its implications, Spectra of sampled signals.	TC-1	R1,R2	
42	42	Reconstruction: ideal interpolator, zero-order hold, first-order hold. Aliasing and its effects.	TC-1	R1,R2	
43	43	Relation between continuous and discrete time systems. Introduction to the applications of signal and system theory	TC-1	R1,R2	
44	44	Modulation for communication, filtering, feedback control systems.	TC-1	R1,R2	
45	45	Revision Class			