B. P. Poddar Institute of Management & Technology

Department of Electronics & Communication Engineering

Academic Year: 2025-26

Lesson Plan

Course Name: Signals and Systems **Course Code: EC 303**

S. No.	Lecture/ Tutorial No.	Topics to be Covered	Text/ References	Teaching Pedagogy*
1.	L1	Familiarization of students with Institute and Department Vision, Mission, PEOs, POs, PSOs, COs, Introduction and Course Overview	T1, R1	C&T, PPT, CD
2.	L2	Some useful operations on signals	T1, WR1	C&T, PPT, CD
3.	L3	Continuous-time, discrete-time, continuous-valued, and discrete-valued signals	T1, WR1	C&T, PPT, CD
4.	L4	Elementary signals and classification of signals	T1, WR1	C&T, PPT, CD
5.	T1	Problems on properties of signals	T1, R1, R2, R3	C&T, PPT, CD, Q, PS
6.	L5	Classification of systems	T1, WR1	C&T, PPT, CD
7.	T2	Problems on linearity, shift invariance, causality, stability and realizability properties of systems	T1, R1, R3	C&T, PPT, CD, PS
8.	L6	LSI systems, convolution sum and convolution integral	T1, R1, WR1	C&T, PPT, CD
9.	L7	Properties of convolution integral and convolution sum	T1, WR1	C&T, PPT, CD
10.	T3	Problems on convolution sum and convolution integral	T1, R3	C&T, PPT, CD, Q, PS
11.	L8	Stability, causality, and step response of LSI systems	T1, R1	C&T, PPT, CD
12.	T4	Problems on causality, and stability of an LSI system	T1, R1, R3	C&T, PPT, CD, PS
13.	T5	System representation through differential equations	T1	C&T, PPT, CD, PS
14.	L9	Introduction to Fourier analysis	T1, R1, WR1	C&T, PPT, CD

S. No.	Lecture/ Tutorial No.	Topics to be Covered	Text/ References	Teaching Pedagogy*
15.	L10	Continuous-time Fourier series and its properties	T1, WR1	C&T, PPT, CD
16.	T6	Problems on continuous-time Fourier series	T1, R1, R2, R3	C&T, PPT, CD, PS
17.	L11	Continuous-time Fourier transform and its properties	T1, WR1	C&T, PPT, CD
18.	T7	Problems on Continuous-time Fourier transform	T1, R1, R2, R3	C&T, PPT, CD, PS
19.	L12	Discrete-time Fourier transform, discrete Fourier transform, and their properties	T1, WR1	C&T, PPT, CD
20.	T8	Problems on DTFT, and DFT	T1, R1, R2, R3	C&T, PPT, CD, PS
21.	L13	Discrete-time Fourier series, its properties, and idea of signal space and orthogonal bases	T1	C&T, PPT, CD
22.	L14	Evolution of Fourier transform, Laplace transform, and z-transform and eigen functions	T1, R1, WR1	C&T, CD
23.	T9	Laplace transform of elementary signals, ROC, poles, and zeros	T1, WR1	FC, C&T, CD, PS
24.	L15	Properties of Laplace transform	T1, WR1	FC, C&T, CD
25.	T10	Problems on Laplace transform and inverse Laplace transform	T1, R1, R2, R3	C&T, CD, Q, PS
26.	T11	Solution to differential equations and system behavior using Laplace transform	T1, R3	C&T, CD, PS
27.	T12	z-transform of elementary functions, and ROC	T1, R3	C&T, PPT, CD, PS
28.	L16	Properties of z-transform	T1, WR1	C&T, PPT, CD
29.	T13	Solution to difference equations and system behavior using z-transform	T1	C&T, CD, PS
30.	L17	Relation of continuous-time systems with discrete-time systems, sampling theorem and the effects of aliasing	T1	C&T, PPT, CD
31.	L18	Ideal interpolator for signal reconstruction	T1	C&T, CD
32.	L19	Zero-order hold and first-order hold interpolation for signal reconstruction	T1	C&T, CD
33.	T14	Problems on sampling and reconstruction of analog signals from their samples.	T1, R3	C&T, CD, PS

S. No.	Lecture/ Tutorial No.	Topics to be Covered	Text/ References	Teaching Pedagogy*
34.	L20	Discussions on a recent publication on Signals and Systems	RP1	C&T, CD
35.	L21	Discussions on previous year questions		C&T, CD, Q, PS
36.	L22	Discussions on model questions		C&T, CD, Q, PS

Text Books (T):

1. Tarun Kumar Rawat, Signals and Systems, Oxford

Reference Books (R):

1. Signals and Systems, A. V. Oppenheim, A. S. Willsky and S. H. Nawab, 2nd ed., PHI
2. B. P. Lathi, Principles of Linear Systems and Signals, 2nd ed., Oxford
3. S. Sharma, Signals and Systems, S. K. Kataria and Sons

Web Resources (WR):

1. https://www.youtube.com/watch?v=ftKIWPBMWKs&list=PL9RcWoqXmzaIG-RWneeqDJ-FCt66S15pl

Research Paper (RP):

1. J. Rajeswari, M. Jagannath, "Advances in biomedical signal and image processing – A systematic review", Informatics in Medicine Unlocked, Volume 8, 2017, Pages 13-19, ISSN 2352-9148, https://doi.org/10.1016/j.imu.2017.04.002.

***Teaching Pedagogy:**

S. No.	Abbreviation	Full Form
1.	C&T	Chalk & Talk
2.	PPT	Power Point Presentation
3.	CD	Classroom Discussions
4.	Q	Quiz
5.	PS	Problem Solving
6.	FC	Flipped Class

Assessment Methodology:

S. No.	Assessment Type	CO Covered
1.	Presentation	CO1
2.	Report Writing	CO2
3.	Class Test1	CO1, CO2, CO3
4.	Class Test2	CO4, CO5
5.	Quiz	CO1, CO2, CO3, CO4, CO5
6.	Assignment	CO1, CO2, CO3, CO4, CO5
7.	End Semester University Exam	CO1, CO2, CO3, CO4, CO5
8.	End Semester Students' Survey (CO Learning Assessment)	CO1, CO2, CO3, CO4, CO5

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