

C. V. RAMAN POLYTECHNIC, BHUBANESWAR

LESSON PLAN Session (2026-2027)

Discipline: Electronics & Telecommunication Engineering	Semester: 3 rd Semester, Winter/2026	Name of the Faculty: Suchismita Satpathy, Asst.Prof. Email ID: suchismita@cvrp.edu.in
Subject: SIGNAL AND SYSTEMS (ETCPC209)	No. Of Days/Week: 03	Start Date: 01.07.2026 End Date: 5.11.2026

Week	Class Day	Theory Topics
1st	1st	1.Introduction to Signals and Systems Signals and systems as seen in everyday life, Signals and systems in various branches of engineering
	2nd	Electrical, mechanical, hydraulic, thermal, biomedical signals and systems as examples.
	3rd	Extracting the common essence and requirements of signal and system.
2nd	1st	Doubt clearing & Problem Solving class.
	2nd	2. Formalizing signals Energy and power signals.
	3rd	Signal properties: Periodicity, Absolute integrability, Determinism and stochastic character.
3rd	1st	Some special signals of importance: The unit step, The unit impulse, The sinusoid, and The complex exponential.
	2nd	Some special time-limited signals : Continuous and discrete time signals, Continuous and discrete amplitude signals.
	3rd	Formalizing systems-system properties: Linearity, Additivity and homogeneity.
4th	1st	Shift-invariance, Causality ,Stability ,Reliability.
	2nd	Doubt clearing & Problem Solving class.
	3rd	3.Continuous time and discrete time Systems: Linear shift-invariant (LSI) systems in detail.
5th	1st	The impulse response and step response, Convolution, Input-output behavior with a periodic convergent inputs, Cascade inter connections
	2nd	Characterization of causality and stability of linear shift-invariant systems
	3rd	System representation through differential equations and difference equations.

6th	1st	4. Periodic and semi-periodic inputs to an LSI system The notion of a frequency response and its relation to the impulse response,
	2nd	Fourier series representation
	3rd	The Fourier Transform
7th	1st	Convolution/multiplication and their effect in the frequency domain, magnitude and phase response, Fourier domain duality.
	2nd	The Discrete-Time Fourier Transform (DTFT) ,The Discrete Fourier Transform (DFT),Parseval's Theorem
	3rd	The idea of signal space and Orthogonal bases of signals.
8th	1st	Doubt clearing & Problem Solving class.
	2nd	5. Laplace Transform for continuous time signals and systems: The notion of Eigen functions of LSI systems
	3rd	A basis of Eigen functions.
9th	1st	Region of convergence ,System functions
	2nd	Poles and zeros of system functions and signals
	3rd	Laplace domain analysis
10th	1st	Solution to differential equations and system behavior
	2nd	Generalization of Parseval's Theorem
	3rd	Doubt clearing & Problem Solving class.
11th	1st	6.System realization: System realization through block-diagram representation and system interconnection.
	2nd	State-space analysis and multi-input, multi-output representation.
	3rd	The state-transition matrix and its role.
12th	1st	The Sampling Theorem and its implications
	2nd	Spectra of sampled signals.
	3rd	Reconstruction: Ideal interpolator ,Zero-order hold ,First-order hold
13th	1st	Aliasing and its effects.
	2nd	Relation between continuous and discrete time systems.
	3rd	Doubt clearing & Problem Solving class.
14th	1st	7.Applications of signal and system theory: Modulation for communication and filtering
	2nd	Time-frequency representation and the uncertainty principle
	3rd	Short-time Fourier Transforms and wavelet transforms.
15th	1st	Doubt clearing & Problem Solving class.
	2nd	Previous Year Question Discussion.
	3rd	Previous Year Question Discussion.



Concerned Faculty



H.O.D.