NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE & affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: EEEPC209 (SIGNAL & SYSTEMS)

Name Of The Faculty :- Er. Rakesh Kumar Sethi
Branch :- Electrical & Electronics Engineering **Semester :-** 3rd
Academic Year : 2025-26 **Examination :-** 2025 (W)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Introduction to Signals and Systems	5	4
2	Formalizing signals	8	11
3	Continuous time and discrete time Systems	6	7
4	Periodic and semi-periodic inputs to an LSI system	8	11
5	Laplace Transform for continuous time signals and systems	8	11
6	System realization	7	10
7	Applications of signal and system theory	5	6
	Total Period:	47	60

Sign of Faculty

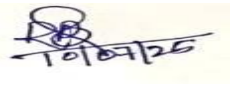
Sign of H.O.D.

Name of the programme: Diploma in Electrical & Electronics Engineering	Semester: 3rd	**Name of the Teaching Faculty:** Er. Rakesh Kumar Sethi	
		Academic Year : 2025-26 **Examination :** 2025 (W)	
Course Code: EEEPC209 TH-5	**Course Year:** Second Year	**No. of Classes Alloted Per Week :**	4
		Planned Classes Required to Complete the Course	60

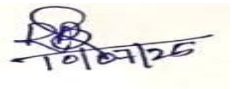
Week	Class Day	Topics to be Covered
1st	1st	1.1 Signals and systems as seen in everyday life
	2nd	1.2 Signals and systems in various branches of engineering
	3rd	1.3 Electrical, mechanical, hydraulic, thermal, biomedical signals
	4th	1.4 Extracting the common essence and requirements of signal and system
2nd	1st	2.1 Energy and power signals
	2nd	2.2 Signal properties 2.2.1 Periodicity
	3rd	2.2.2 Absolute integrability 2.2.3 Determinism and stochastic character
	4th	2.3 Some special signals of importance 2.3.1 The unit step
3rd	1st	2.3.2 The unit impulse 2.3.3 The sinusoid
	2nd	2.3.4 The complex exponential
	3rd	2.4 some special time-limited signals 2.4.1 Continuous and discrete time signals,
	4th	2.4.2 Continuous and discrete amplitude signals
4th	1st	2.5 Formalizing systems- system properties 2.5.1 Linearity
	2nd	2.5.2 Additivity and homogeneity 2.5.3 Shift-invariance
	3rd	2.5.4 Causality 2.5.6 Reliability 2.5.5 Stability
	4th	3.1 Linear shift-invariant (LSI) systems in detail
5th	1st	3.2 The impulse response and step response
	2nd	3.3 Convolution
	3rd	3.4 Input-output behavior with aperiodic convergent inputs
	4th	3.5 Cascade interconnections

Week	Class Day	Topics to be Covered
6th	1st	3.6 Characterization of causality and stability of linear shift-invariant systems
	2nd	3.7 System representation through differential equations and difference equations
	3rd	4.1 The notion of a frequency response and its relation to the impulse response
	4th	4.2 Fourier series representation
7th	1st	4.3 The Fourier Transform
	2nd	4.4 Convolution/multiplication and their effect in the frequency domain, magnitude and phase response, Fourier domain duality.
	3rd	4.5 The Discrete-Time Fourier Transform (DTFT)
	4th	4.5 The Discrete-Time Fourier Transform (DTFT)
8th	1st	4.6 The Discrete Fourier Transform (DFT)
	2nd	4.6 The Discrete Fourier Transform (DFT)
	3rd	4.7 Parseval's Theorem
	4th	4.7 Parseval's Theorem
9th	1st	4.8 The idea of signal space and Orthogonal bases of signals.
	2nd	5.1 The notion of Eigen functions of LSI systems
	3rd	5.2 A basis of Eigen functions
	4th	5.3 Region of convergence
10th	1st	5.4 System functions
	2nd	5.5 Poles and zeros of system functions and signals
	3rd	5.5 Poles and zeros of system functions and signals
	4th	5.6 Laplace domain analysis
11th	1st	5.6 Laplace domain analysis
	2nd	5.7 Solution to differential equations and system behavior
	3rd	5.7 Solution to differential equations and system behavior

Week	Class Day	Topics to be Covered
11th	4th	5.8 Generalization of Parseval's Theorem
12th	1st	6.1 System realization through block-diagram representation and system interconnection
	2nd	6.2 State-space analysis and multi-input, multi-output representation.
	3rd	6.3 The state-transition matrix and its role.
	4th	6.4 The Sampling Theorem and its implications 6.4.1 Spectra of sampled signals
13th	1st	6.5 Reconstruction: 6.5.1 Ideal interpolator
	2nd	6.5.2 Zero-order hold 6.5.3 First-order hold
	3rd	6.6 Aliasing and its effects.
	4th	6.7 Relation between continuous and discrete time systems.
14th	1st	6.7 Relation between continuous and discrete time systems.
	2nd	6.7 Relation between continuous and discrete time systems.
	3rd	7.1 Modulation for communication and filtering
	4th	7.1 Modulation for communication and filtering
15th	1st	7.2 Time-frequency representation and the uncertainty principle
	2nd	7.2 Time-frequency representation and the uncertainty principle
	3rd	7.3 Short-time Fourier Transforms and wavelet transforms.
	4th	7.3 Short-time Fourier Transforms and wavelet transforms.



Sign of Faculty



Sign of H.O.D.