PNS SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

Branch: ETC Engg.	Semester: 3rd	Name of the Lecturer: **Aditya Narayan Jena**	
Subject: SS	Classes Alloted in a Week: 4	Duration of Semester: 14.07.2025 - 15.11.2025	
Week	Class Day	Theory / Practical Topic	
1st	1	**INTRODUCTION TO SIGNALS & SYSTEM:** Signals & systems seen in everyday life	
	2	Signals & systems in various branches of engg.	
	3	Electrical,Mechanical,Hydraulic,thermal,biomedical signals & systems	
	4	Extracting the common essence and requirements of signals & systems	
2nd	1	**FORMALIZING SIGNALS:** Energy and Power signals	
	2	Properties of signals	
	3	Properties of signals	
	4	Some special signals of importance	
3rd	1	Some special time limited signals	
	2	Properties of systems	
	3	Properties of systems	
	4	**CONTINUOUS AND DISCRETE TIME SYSTEMS:** LSI System	
4th	1	LSI System	
	2	Impulse response	
	3	Step Response	
	4	Convolution	
5th	1	Input-output behaviour with aperiodic convergent inputs	
	2	Cascade interconnections	
	3	Casuality and stability of LSI System	
	4	System representation through differential and difference equation	
6th	1	**PERIODIC AND SEMI PERIODIC INPUTS TO AN LSI SYSTEM:** Frequency response and its relation to impulse response	
	2	Fourier series representation	
	3	Fourier transform	
	4	Convolution/Multiplication in frequency domain	
7th	1	Magnitude and Phase response;Frequency domain duality	
	2	DTFT	
	3	DFT	
	4	Parseval's Theorem	
8th	1	Signal space and orthogonal bases of signals	
	2	**LAPLACE TRANSFORM FOR CONTINUOUS TIME SIGNALS AND SYSTEMS:** Eigen function of LSI System	
	3	Basis of Eigen Functions	
	4	Region of convergence	

9th	1	System functions	
	2	Poles & Zeros of system functions & signals	
	3	LAPLACE domain Analysis	
	4	Solution to differential equation & system behaviour	
10th	1	Generalization of Parseval's Theorem	
	2	**SYSTEM REALIZATION:** Block diagram representation	
	3	System interconnection	
	4	State-space analysis	
11th	1	Multi input,Multi output representation	
	2	State transition matrix	
	3	Sampling Theorem, Spectra of sampled signals	
	4	Reconstruction,Ideal interpolator	
12th	1	Zero order,First order Hold	
	2	Aliasing,its effect	
	3	Relation between continuous and discrete time system	
	4	**APPLICATIONS OF SIGNAL & SYSTEM THOERY:** Modulation for communication	
13th	1	Filtering	
	2	Time frequency represntation	
	3	Uncertainty Principle	
	4	Shorttime Fourier transforms, Wavelet transforms	

Signature of the Lecturer   **Signature of the H.O.D.**   **Signature of the Principal**