Bhubanananda Orissa School of Engineering
Lesson Plan

Discipline: ETC	Semester:6th	Name of the Teaching Faculty: RUPALI LAYAK
Subject: DIGITAL SIGNAL PROCESSING	No of Days/per week class allotted: 4	Semester from : 14.02.2023 to 23.05.2023 No of weeks:15
Week No.	Class Day: MON, TUE, THUR, FRI	Theory Topics
1st	14-02-2023 16-02-2023	**CHAPTER 1:INTRODUCTION OF SIGNALS, SYSTEMS & SIGNAL PROCESSING** 1.1 Basics of Signals, Systems & Signal processing- basic element of a digital signal processing system -Compare the advantages of digital signal processing over analog signal processing.
	17-02-2023	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals.
2nd	20-02-2023	1.3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.
	21-02-2023	1.4 Analog to Digital & Digital to Analog conversion & explain the following. a. Sampling of Analog signal,
	23-02-2023	b. The sampling theorem. c. Quantization of continuous amplitude signals, d. Coding of quantized sample.
	24-02-2023	e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
3rd	27-02-2023	**CHAPTER 2:DISCRETE TIME SIGNALS & SYSTEMS.** 2.1 Concept of Discrete time signals.
	28-02-2023	2.1.1 Elementary Discrete time signals.
	02-03-2023	2.1.2 Classification Discrete time signal.
	03-03-2023	2.1.3 Simple manipulation of discrete time signal.
4th	06-03-2023	2.2 Discrete time system. 2.2.1 Input-output of system.
	09-03-2023	2.2.2 Block diagram of discrete- time systems 2.2.3 Classify discrete time system
	10-03-2023	2.2.4 Inter connection of discrete -time system. 2.3 Discrete time time-invariant system.
5th	13-03-2023	2.3.1 Different techniques for the Analysis of linear system.
	14-03-2023	2.3.2 Resolution of a discrete time signal in to impulse.

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	16-03-2023	2.3.3 Response of LTI system to arbitrary inputs using convolution sum.
	17-03-2023	2.3.4 Convolution & interconnection of LTI system - properties.
6th	20-03-2023	2.3.5 Study systems with finite duration and infinite duration impulse response.
	21-03-2023	2.4 Discrete time system described by difference equation
	23-03-2023	2.4.1 Recursive & non-recursive discrete time system.
	24-03-2023	2.4.2 Determine the impulse response of linear time invariant recursive system.
7th	27-03-2023	2.4.3 Correlation of Discrete Time signals
	28-03-2023	**CLASS TEST 1**
	31-03-2023	**CHAPTER 3:** **THE Z-TRANSFORM & ITS APPLICATION TO THE ANALYSIS OF LTI SYSTEM.** 3.1.1 Direct Z-transform.
8th	03 -04-2023	3.1.2 Inverse Z-transform.
	04 -04-2023	3.2 Various properties of Z-transform.
	06 -04-2023	3.3 Rational Z-transform. 3.3.1 Poles & zeros.
	07 -04-2023	3.3.2 Pole location time domain behaviour for casual signals.
9th	10 -04-2023	3.3.3 System function of a linear time invariant system
	11 -04-2023	3.4 Discuss inverse Z-transform
	13 -04-2023	
	14 -04-2023	3.4.1 Inverse Z-transform by partial fraction expansion.
10th	17 -04-2023	3.4.2 Inverse Z-transform by contour Integration
	18 -04-2023	**INTERNAL TEST 1**
	20 -04-2023	**CHAPTER 4: DISCUSS FOURIER TRANSFORM: ITS APPLICATIONS PROPERTIES.** 4.1 Concept of discrete Fourier transform
	21 -04-2023	4.2 Frequency domain sampling and reconstruction of discrete time signals.

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11th	24 -04-2023	4.3 Discrete Time Fourier transformation(DTFT)
	25 -04-2023	4.4 Discrete Fourier transformation (DFT)
	27 -04-2023	4.5 Compute DFT as a linear transformation
	28 -04-2023	4.6 Relate DFT to other transforms
12th	01-05-2023	4.7 Property of the DFT
	02-05-2023	4.8 Multiplication of two DFT & circular convolution
	04-05-2023	**CHAPTER 5-- FAST FOURIER TRANSFORM ALGORITHM & DIGITAL FILTERS** 5.1 Compute DFT and Algorithm FFT
	05-05-2023	5.2 Direct computation of DFT
13th	08-05-2023	5.3 Divide and Conquer Approach to computation of DFT
	09-05-2023	5.4 Radix-2 algorithm. (Small Problems)
	11-05-2023	5.5 Application of FFT algorithms
	12-05-2023	5.6 Introduction to digital filters.(FIR Filters)& General considerations
14th	15-05-2023	5.7 Introduction to DSP architecture, familiarisation of different types of processor
	16-05-2023	
	18-05-2023	REVISION
15th	22-05-2023	**CLASS TEST 1**
	23-05-2023	**INTERNAL TEST 2**

Rupali Layak

Signature of Faculty

13/02/2023

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