Lesson Plan

Sl. No.	Discipline: ETC	Semester-6th Summer-2024	Name of the Teachng Faculty: Smt.PRIYANKA DHAL(GUEST FACULTY ETC Engg)
	Subject-Th.3. (DIGITAL SIGNAL PROCESSING)2	No. Of Days/Week class alloted:04	Semester From date: 16.02.2024 To date: 26.04.2024 (No of weeks: 15)
	Weeks/Months	Class Day	Topic
1	3rd week 16 jan To 20 jan	1st	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
		2nd	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
		3rd	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals
		4th	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals
		5th	3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.
2	4th week 22 jan To 27 jan	1st	3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.
		2nd	1.4 Analog to Digital & Digital to Analog conversion & explain the following. a. Sampling of Analog signal, b. The sampling theorem.
		3rd	c. Quantization of continuous amplitude signals, d. Coding of quantized sample. e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
		4th	c. Quantization of continuous amplitude signals, d. Coding of quantized sample. e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
		5th	2.1.2 Classification Discrete time signal. 2.1.3 Simple manipulation of discrete time signal.
3	5th week 29 jan To 1st week 03 feb	1st	2.2 Discrete time system. 2.2.1 Input-output of system.
		2nd	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals
		3rd	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals
			3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.
		4th	3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.

4	2nd week 05 feb To 10 feb	1st	1.4 Analog to Digital & Digital to Analog conversion & explain the following. a. Sampling of Analog signal, b. The sampling theorem.
		2nd	1.4 Analog to Digital & Digital to Analog conversion & explain the following. a. Sampling of Analog signal, b. The sampling theorem.
		3rd	c. Quantization of continuous amplitude signals, d. Coding of quantized sample. e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
		4th	c. Quantization of continuous amplitude signals, d. Coding of quantized sample. e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
		5th	2.1 Concept of Discrete time signals. 2.1.1 Elementary Discrete time signals.
5	3rd week 12 feb To 17 feb	1st	2.1 Concept of Discrete time signals. 2.1.1 Elementary Discrete time signals.
		2nd	2.1.2 Classification Discrete time signal.
		3rd	2.1.3 Simple manipulation of discrete time signal.
		4th	2.2 Discrete time system. 2.2.1 Input-output of system.
		4th	2.2.2 Block diagram of discrete- time systems
6	4th week 19 feb To 24 feb	1st	2.2.3 Classify discrete time system.
		2nd	2.2.4 Inter connection of discrete -time system.
		3rd	2.3 Discrete time time-invariant system. 2.3.1 Different techniques for the Analysis of linear system.
		4th	2.3 Discrete time time-invariant system. 2.3.1 Different techniques for the Analysis of linear system.
		4th	2.3.2 Resolution of a discrete time signal in to impulse
7	2nd week 04 march To 09 march	1st	2.3.2 Resolution of a discrete time signal in to impulse
		2nd	2.3.3 Response of LTI system to arbitrary inputs using convolution sum
		3rd	2.3.3 Response of LTI system to arbitrary inputs using convolution sum
		4th	2.3.4 Convolution & interconnection of LTI system -properties.
		4th	2.3.5 Study systems with finite duration and infinite duration impulse response
8	3rd week 11 march To 16 march	1st	2.3.5 Study systems with finite duration and infinite duration impulse response
		2nd	2.4 Discrete time system described by difference equation. 2.4.1 Recursive & non-recursive discrete time system
		3rd	2.4 Discrete time system described by difference equation. 2.4.1 Recursive & non-recursive discrete time system
		4th	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
		5th	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
9	4th week 18 march To 23 march	1st	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
		2nd	Draw a neat sketch for the timing diagram for 8085 instruction (MOV, MVI, LDA instruction
		3rd	2.4.3 Correlation of Discrete Time signals
		4th	2.4.3 Correlation of Discrete Time signals
		5th	3.1 Z-transform & its application to LTI system. 3.1.1 Direct Z-transform.

10	5th week 25 march To 30 march	1st	3.1.2 Inverse Z-transform
		2nd	3.2 Various properties of Z-transform.
		3rd	3.3 Rational Z-transform. 3.3.1 Poles & zeros
		4th	3.3 Rational Z-transform. 3.3.1 Poles & zeros
		5th	3.3.2 Pole location time domain behaviour for casual
11	1st week 01 april To 06 april	1st	3.3.2 Pole location time domain behaviour for casual signals
		2nd	3.3.3 System function of a linear time invariant system
		3rd	3.4.1 Inverse Z-transform by partial fraction expansion.
		4th	3.4.1 Inverse Z-transform by partial fraction expansion.
		5th	4.1 Concept of discrete Fourier transform. 4.2 Frequency domain sampling and reconstruction of discrete time signals
12	1st week 08 april To 13 april	1st	4.1 Concept of discrete Fourier transform. 4.2 Frequency domain sampling and reconstruction of discrete time
		2nd	4.3 Discrete Time Fourier transformation(DTFT)
		3rd	4.4 Discrete Fourier transformation (DFT).
		4th	4.5 Compute DFT as a linear transformation. 4.6 Relate DFT to other transforms.
		5th	4.5 Compute DFT as a linear transformation. 4.6 Relate DFT to other transforms.
13	2nd week 15 april To 20 april	1st	4.7 Property of the DFT. 4.8 Multiplication of two DFT & circular convolution
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		3rd	5.1 Compute DFT & FFT algorithm. 5.2 Direct computation of DFT.
		4th	5.1 Compute DFT & FFT algorithm. 5.2 Direct computation of DFT.
		5th	5.3 Divide and Conquer Approach to computation of DFT 5.4 Radix-2 algorithm. (Small Problems)
14	3rd week 22 april To 26 april	1st	5.3 Divide and Conquer Approach to computation of DFT 5.4 Radix-2 algorithm. (Small Problems)
		2nd	5.5 Application of FFT algorithms 5.6 Introduction to digital filters.(FIR Filters)& General considerations
		3th	5.5 Application of FFT algorithms 5.6 Introduction to digital filters.(FIR Filters)& General considerations
		4th	5.7 Introduction to DSP architecture, familiarisation of different types of processor
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Signature of the Faculty