GIET POLYTECHNIC, JAGATPUR, CUTTACK

LESSON PLAN

Discipline: ELECTRONICS	**Semester: 6th**	**Name Of The Teaching Faculty: RASHMITA SETHI**
Subject: DSP	**No. Of Days Per Week Class Allotted: 04 P**	**Semester From Date:** **To Date:** **No. of weeks: 15**
Week	Class Day	Theory Topic
1st week	1st	**UNIT 1 : INTRODUCTION** • 1.1: Basic signal system & signal processing
	2nd	• 1.1: Compare the advantage of DSP over ASP
	3rd	• 1.2: Classify signal
	4th	• 1.2: Continuous time vs Discrete time signal
2nd week	1st	• 1.3: Concept of frequency in continuous time signal
	2nd	• 1.3: Continuous time vs discrete time signal
	3rd	• 1.4: Adc & dac
	4th	• 1.4.a : Sampling Of Analog Signal
3rd week	1st	1.4.b : The Sampling Theorem
	2nd	• 1.4.c : Quantization Of Continuous Amplitude Signals • 1.4.d : Coding of quantized sample
	3rd	• 1.4.e : Digital to analog conversion.
	4th	• 1.4.f: Analysis of digital system signal vs discrete time signal
4th week	1st	**UNIT 2: DISCRETE TIME SIGNALS & SYSTEMS** • 2.1 : Concept of Discrete time signals • 2.1.1: elementary discrete time signal
	2nd	• 2.1.2: Classification Discrete time signal
	3rd	• 2.1.3: Simple manipulation of discrete time signals
	4th	• 2.2: Discrete time system • 2.2.1: Input- Output of system
5th week	1st	• 2.2.2: Block diagram of discrete-time system • 2.2.3: Classify discrete time system
	2nd	• 2.2.4: Inter connection of discrete-time system
	3rd	• 2.3: Discrete time-invariant system • 2.3.1: Different techniques for the analysis of linear system
	4th	• 2.3.2: Resolution Of A Discrete Time Signal Into Impulse • 2.3.3: response of LTI system to arbitrary inputs using convolution sum
6th week	1st	• 2.3.4: Convolution & interconnection of LTI system properties • 2.3.5: Study systems with finite duration and infinite duration impulse response
	2nd	• 2.3.5: Study systems with finite duration and infinite duration impulse response • 2.4: Discrete time systems described by difference equation
	3rd	• 2.4.1: Recursive & non-recursive discrete time system • 2.4.2: Determine the impulse response of linear time invariant recursive system
	4th	• 2.4.3: Correlation of Discrete Time signals
7th week	1st	**UNIT-3: THE Z-TRANSFORM & ITS APPLICATION TO THE ANALYSIS OF LTI SYSTEM** • 3.1: Z-Transform & Its Application to LTI System
	2nd	• 3.1.1: Direct Z-Transform
	3rd	• 3.1.1: Direct Z-Transform

	4th	• 3.1.2: Inverse Z-transform
8th week	1st	• 3.1.2: Inverse Z-Transform
	2nd	• 3.2: Various Properties Of Z-Transform
	3rd	• 3.3: Rational Z-transform
	4th	• 3.3.1: Poles & zeros
9th week	1st	• 3.3.2: Pole location time domain behavior for casual signals
	2nd	• 3.3.3: System function of a linear time invariant system:
	3rd	• 3.4: Discuss Inverse Z-transform • 3.4.1: Inverse Z-transform by partial fraction expansion
	4th	• 3.4.1: Inverse Z-transform by partial fraction expansion
10th week	1st	• 3.4.2: Inverse Z-transform by contour integration
	2nd	• 3.4.2: Inverse Z-transform by contour integration
	3rd	UNIT-4: DISCUSS FOURIER TRANSFORM & ITS APPLICATIONS PROPERTIES • 4.1: concept of discrete Fourier transform
	4th	• 4.2: Frequency domain sampling and reconstruction of discrete time signals
11th week	1st	• 4.2: Frequency domain sampling and reconstruction of discrete time signals
	2nd	• 4.3: Discrete Time Fourier Transformation (DTFT)
	3rd	• 4.4: Discrete Fourier Transformation (DFT)
	4th	• 4.5: compute DFT as a linear transformation
12th week	1st	• 4.6: Relate DFT To Other Transforms
	2nd	• 4.6: Relate DFT To Other Transforms
	3rd	• 4.7: Property Of The DFT
	4th	• 4.7: Property Of The DFT
13th week	1st	• 4.8: multiplication of two DFT & circular convolution
	2nd	• 4.8: multiplication of two DFT & circular convolution
	3rd	UNIT-5: FAST FOURIER TRANSFORM ALGORITHM & DIGITAL FILTERS • 5.1: compute DFT & FFT algorithm
	4th	• 5.2: Direct computation of DFT
14th week	1st	• 5.3: Divide and Conquer Approach to computation of DFT
	2nd	• 5.4: Radix-2 algorithm (small problems)
	3rd	• 5.4: Radix-2 algorithm (small problems)
	4th	• 5.5: Application of FFT algorithms
15th week	1st	• 5.6: Introduction to digital filters
	2nd	• 5.6: FIR Filters & generalconsiderations
	3rd	• 5.7: Introduction to DSP architecture, familarisation of different types of processor
	4th	• 5.7: Introduction to DSP architecture, familarisation of different types of processor