

DHABALESWAR INSTITUTE OF POLYTECHNIC

LESSON PLAN

Discipline	Semester	Name of the Teaching Faculty
Diploma	6th	Sibikaulha Ruth
Subject	No. of days per Week Class Allotted	6th Semester from Dt. 14/03/22 To Dt. 04/06/22
DSP	5 days.	No. of Weeks: 15 weeks.
Week	Class Day	Theory / Practical Topics
1st (March)	Unit -1 1st Day Introduction of Signals, Systems & Signal processing	1.1 → Basic 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	2nd 3rd 4th 1st 2nd 3rd 4th 5th	1.2 → Classify signals → Multi channel & Multi-dimensional signals - continuous time versus Discrete time signal continuous valued versus Discrete valued signal. 1.3 - Concept of frequency in continuous time & discrete time signals - continuous time sinusoidal signals - Discrete time sinusoidal signals - Harmonically related complex exponential. 1.4 - Analog to Digital & Digital to Analog conversion & explain the following. a- Sampling of Analog signal. b- The sampling theorem. c- Quantization of continuous amplitude d- Coding of quantized sample signals. e- Digital to analog conversion. f- Analysis of digital systems signals Vs. discrete time signals system.
3rd	1st 2nd 3rd 4th 5th	


 H.O.D. Electronics & Telecomm. Engg
 DIP Aihgarh

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4th (April)	Unit-2 01 Day Discrete Time Signals & Systems 02 Day	2.1- concept of Discrete time signals. → Elementary Discrete time signals. → Classification Discrete time signals. → Simple manipulation of discrete time signal.
5th	03	2.2- Discrete time System.
	04	→ input-output of system
	05	→ Block diagram of discrete-time system
	01	→ classify discrete time system
	02	→ inter connection of discrete-time system
	03	2.3- Discrete time time-invariant system → Different techniques for a Analysis of linear system.
	04	→ Resolution of a discrete time signal in to impulse.
	01	→ Response of LTI system to arbitrary inputs using convolution sum.
6th	02	→ Study convolution & interconnection of LTI system-properties
	03	→ Study system with finite duration and infinite duration impulse response
	04	2.4- Discrete time system described by difference equation.
	05	→ Recursive & non-recursive discrete equation.
7th	01	→ Determine the impulse response of linear time invariant recursive system
		→ Correlation of discrete time signal

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7th	02	Unit-3 The z-Transform and ITS Application to the Analysis of LTI 3.1-z-transform and its application to LTI system → Direct z-transform → Inverse z-transform 3.2- Various properties z-transform.
	03	
	04	
	04	
8th (May)	01	3.3- Rational z-transform → Poles and zeros
	02	→ Poles location time domain behaviour for causal signal
	03	→ System function of a linear time invariant system.
	04	3.4- Discuss inverse z-transform → Inverse z-transform by partial fraction expansion.
9th	01	→ Inverse z-transform by Contour integration
	02	Unit-4 Discuss fourier transform: ITS Application Properties:-
	03	→ Concept of direct fourier transform
	04	→ Frequency domain sampling & reconstruction of discrete time signal.
	05	→ Discrete time fourier transformation (DTFT)
10th	01	→ Discrete fourier transformation (DFT)
	02	→ Compute DFT as a linear transformation
	03	→ Relate DFT to other transforms.
	04	→ Property of the DFT
	05	→ Multiplication of two DFT & circular convolution
11th	01	Unit-5 Fast fourier Transform Algorithm and digital filters. → Compute DFT & FFT algorithm
	02	→ Direct computation of DFT
	03	→ Divide and Conquer Approach to computation DFT
	04	→ Radix-2 algorithm (small problem)
	05	→ Application of FFT algorithm
	06	→ Introduction to digital filter (FIR & IIR) general consideration
	07	→ Introduction to DSP architecture, familiarisation of different types of processor

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	03	3.1-z-transform and its application to LTI system
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	03	Unit: 4 Discuss Fourier transform: ITS Application Properties:-
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