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.  4th c. Quantization of continuous amplitude signals, d. Coding of quantized sample.  e. Digital to analog conversion.  1st  3rd  f. Analysis of digital systems signals vs. discrete time signals systems.  2nd  2nd  2. DISCRETE TIME SIGNALS & SYSTEMS (14)  3rd  Concept of Discrete time signals. 2.1.1 Elementary Discrete time signals. 2.1.2 Classification Discrete time signal.  2.1.3 Simple manipulation of discrete time signal.  2.2 Discrete time system. 2.2.1 Input-output of system.  4th  1st  2.2.2 Block diagram of discrete-time systems  2nd  4th  2.2.3 Classify discrete time system.  3rd  4th  2.2.4 Inter connection of discrete-time system.  2.3 Discrete time time-invariant system. 2.3.1 Different techniques for the Analysis of linear system.  2.3.2 Resolution of a discrete time signal in to impulse.			LESSON PLAN
Signal   Week class   Signal   Week class   Signal   Theory / Practical Topics	Discipline: ETC	Semester:6th	
1. Introduction of Signals, Systems & Signal processing(10) 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.  1.2 Classify signals - Multi channel & Multi-dimensional signals-Continuous time verses Discrete times Signal.  4th Continuous valued verses Discrete -valued signals.  1.3 Concept of frequency in continuous time & discrete time signals-Continuous time sinusoidal signals-biscrete-time sinusoidal signals-Harmonically related complex exponential.  2nd  2nd  2nd  1.4 Analog to Digital & Digital to Analog conversion & explain the following. a. Sampling of Analog signal,  b. The sampling theorem.  3rd  4th  c. Quantization of continuous amplitude signals, d. Coding of quantized sample.  e. Digital to analog conversion.  1st  3rd  2nd  2. DISCRETE TIME SIGNALS & SYSTEMS (14)  2. Concept of Discrete time signals. 2.1.1 Elementary Discrete time signals. 2.1.2 Classification Discrete time signal.  2. DISCRETE time Signals. 2.1.1 Elementary Discrete time signals. 2.2.0 Signals with a signal signal of discrete time signal.  2. DISCRETE time signals. 2.2.1 Input-output of system.  4th  2. Discrete time system. 2.2.1 Input-output of system.  2nd  2nd  2nd  2. Discrete time system. 2.2.1 Input-output of system.  3rd  2. Discrete time signal of discrete-time systems.  2nd  2nd  2. Discrete time signal of discrete-time system.  2. Discrete time time-invariant system. 2.3.1 Different techniques for the Analysis of linear system.  2.3 Discrete time time-invariant system. 2.3.1 Different techniques for the Analysis of linear system.	Signal	week class	No of Weeks:15
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2nd   Verses Discrete -times Signal	1st	2 <sup>nd</sup>	processing.
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Sth  Analysis of linear system.  2.3.2 Resolution of a discrete time signal in to impulse.  2 <sup>nd</sup>		4th	2.2.4 Inter connection of discrete -time system.
2.3.2 Resolution of a discrete time signal in to impulse.		<u> 1st</u>	
	5th	2 <sup>nd</sup>	2.3.2 Resolution of a discrete time signal in to impulse.
2.3.3 Response of LTI system to arbitrary inputs using convolution sum.  3 <sup>rd</sup>		3 <sup>rd</sup>	2.3.3 Response of LTI system to arbitrary inputs using convolution sum.
4th 2.3.4 Convolution & interconnection of LTI system - properties.		4th	2.3.4 Convolution & interconnection of LTI system - properties.

		2.3.5 Study systems with finite duration and infinite duration impulse response.
1	1st	
6th	and	2.4 Discrete time system described by difference equation. 2.4.1 Recursive &
_	2 <sup>nd</sup>	non-recursive discrete time system.
	3 <sup>rd</sup>	2.4.2 Determine the impulse response of linear time invariant recursive system.
<u> </u>		
	4th	2.4.3 Correlation of Discrete Time signals
		3. THE Z-TRANSFORM & ITS APPLICATION TO THE ANALYSIS OF LTI SYSTEM. (14)
	1st	3.1 Z-transform & its application to LTI system.
7th		3.1.1 Direct Z-transform.
-	2 <sup>nd</sup>	
	3 <sup>rd</sup>	3.1.2 Inverse Z-transform.
	 4th	3.2 Various properties of Z-transform.
	1 <sup>st</sup>	Continue
		3.3 Rational Z-transform.
8th	3 <sup>rd</sup>	3.3.1 Poles & zeros.
	4 <sup>th</sup>	3.3.2 Pole location time domain behaviour for casual signals.
	 1 <sup>st</sup>	3.3.3 System function of a linear time invariant system.
		3.4 Discuss inverse Z-transform.
9th		3.4.1 Inverse Z-transform by partial fraction expansion.
	4 <sup>th</sup>	Continue
	1 <sup>st</sup>	3.4.2 Inverse Z-transform by contour Integration
	2 <sup>nd</sup>	Continue
10th	3 <sup>rd</sup>	4. DISCUSS FOURIER TRANSFORM: ITS APPLICATIONS PROPERTIES(12)
		4.1 Concept of discrete Fourier transform.
	4 <sup>th</sup>	4.2 Frequency domain sampling and
	1 <sup>st</sup>	reconstruction of discrete time signals.
11th -	2 <sup>nd</sup>	4.3 Discrete Time Fourier transformation(DTFT)
	3 <sup>rd</sup>	Continue
	4 <sup>th</sup>	4.4 Discrete Fourier transformation (DFT).
_	1 <sup>st</sup>	Continue
12th -	2 <sup>nd</sup>	4.5 Compute DFT as a linear transformation.
	3 <sup>rd</sup>	4.6 Relate DFT to other transforms.
	4 <sup>th</sup>	4.7 Property of the DFT.
	1 <sup>st</sup>	4.8 Multiplication of two DFT &
	2 <sup>nd</sup>	circular convolution
13th	3 <sup>rd</sup>	5. FAST FOURIER TRANSFORM ALGORITHM & DIGITAL FILTERS(10)
-	4 <sup>th</sup>	5.1 Compute DFT & FFT algorithm.  Continue
	1 <sup>st</sup>	5.2 Direct computation of DFT.
<del> </del>	2 <sup>nd</sup>	5.3 Divide and Conquer Approach to computation of DFT
	Z'' <sup>u</sup>	13.3 Divide and Conquer Approach to Computation of DF1

14th	3 <sup>rd</sup>	5.4 Radix-2 algorithm. (Small Problems)
	4 <sup>th</sup>	5.5 Application of FFT algorithms
15th	1 <sup>st</sup>	5.6 Introduction to digital filters.
	2 <sup>nd</sup>	(FIR Filters)& General considerations
	3 <sup>rd</sup>	5.7 Introduction to DSP architecture,
	4th	familiarization of different types of processor