(Session - 2020-2021)

Name of the faculty - Manasi Priyadarshini

Session - 2020-2021

Discipline - Electronics & Telecommunication

Semester - 6th

Subject - Digital Signal Processing (DSP)

No. of weeks - 17

No. of periods per week alloted - 4
(according to SCTE & VT)

No. of periods per week (during on-line classes) - 4

Sub: Digital Signal Processing (DSP)

6th Sem ETC

Week	Class	chapter1 Topic
1st week 20/4/2021 to 24/4/2021	1st →	Basics of signals, systems & signal processing
	2nd →	Advantages of DSP over ASP
		(21/4/2021) → Holiday
	3rd →	Continuous time signal, Discrete time signal, Cont. valued signal & Discrete valued signal
	4th →	Deterministic signal, Random signal, Analog signal and digital signal
2nd week 26/4/2021 to 1/5/2021	1st →	Continuous time sinusoidal signal, discrete time sinusoidal signal
	2nd →	Harmonically related complex exponentials
	3rd →	Steps used in analog to digital conversion
	4th →	Steps used in analog to digital conversion continued..... Digital signal vs. Discrete time signals
3rd week 3/5/2021 to 8/5/2021	1st →	Sampling theorem, applications of DSP and disadvantages of DSP
	2nd →	chapter2 Different forms of representation of discrete time signal
	3rd →	Elementary discrete time signals.
	4th →	Classification of discrete time system
4th week 10/5/2021 to 15/5/2021	1st →	Energy & Power signals and related problems.
	2nd →	Periodic and Aperiodic signals & problems
		(14/5/2021) → Holiday (Id-ul-Fitre)
	3rd →	Input and output operations on signals
	4th →	Input Output description of a system.

Week	class	Topic
* 5th week 17/5/2024 to 22/5/2024	1st →	Classification of discrete time system (Static vs Dynamic), (Causal vs Non causal), (TV vs TI
	2nd →	Linear & Non-Linear systems and stable vs. Unstable systems
	3rd →	Interconnection of discrete time systems and resolution of signals into impulse
	4th →	Impulse response and convolution sum.
* 6th week 24/5/2024 to 29/5/2024	1st →	Problems related to convolution sum
	2nd →	FIR & IIR systems, Recursive and Non-Recursive systems & some problems.
	3rd →	LTI system characterized by constant co-efficient difference eqns
	4th →	Homogeneous solution and particular solution of difference eqn.
* 7th week 31/5/2024 to 5/6/2024	1st →	Total solution of a difference eqn and correlation of discrete time signals
	2nd →	Chapter-3 Introduction to Z-transform
	3rd →	Z-transform of infinite duration signals
	4th →	Properties of Roc and some problems related to elementary signals.
* 8th week 7/6/2024 to 12/6/2024	1st →	Properties of Z-transform.
	2nd →	Definition of poles and zeroes of a rational function and time domain behaviour of causal signal
	3rd →	problems related to poles and zeros
	4th →	System function of a LTI system and related problems.

Week	class	Topic
9th week 14/6/2024 to 19/6/2024	1st	→ Introduction to inverse z-transform & (15/6/2024) → Holiday (Raja Sankranti)
	2nd	→ Partial fraction expansion and its related problems.
	3rd	→ Some more problems related to partial fraction expansion and long division method
	4th	→ Solution of difference eqn by using two sided z-transform
10th week 21/6/2024 to 24/6/2024	1st	→ Causality and stability of a system
		Chapter 4
	2nd	→ Introduction to DFT & DTFT.
	3rd	→ Development of DFT from DTFT.
	4th	→ Problems related to DFT & IDFT.
11th week 26/6/2024 to 3/7/2024	1st	→ Properties of DFT (Periodicity, Linearity and symmetry properties)
	2nd	→ Some more properties of DFT.
	3rd	→ DFT as linear transformation and multiplication of two DFTs.
	4th	→ Types of circular convolution and explanation of concentric circle method.
12th week 5/7/2024 to 10/7/2024	~~1st~~ 1st	→ Circular convolution by matrix multiplication method.
	2nd	→ ~~DFT~~ Relation of DFT to other transforms and ~~to~~ comparision bet^n Linear conv. & Circular conv.
	3rd	→ Chapter 5 Introduction to FFT algorithm and need of FFT in calculation of DFT.
	4th	→ Types of FFT algorithm and twiddle factor

week	class	Topic
13th week	1st →	Steps of DIT-FFT algorithm
8/7/2024		(12/7/2024) → Holiday (Rathayatra)
to	2nd →	8-point DIT-FFT problems
12/7/2024	3rd →	4-point DIT-FFT problems
	4th →	DIF-FFT algorithm and steps of DIF-FFT algorithm
14th week	1st →	Problems related to 8-point DIF-FFT algorithm
15/7/2024	2nd →	Problems related to 4 point DIT-FFT algo
to		(21/7/2024) → Holiday (Id-ul-Zuha)
19/7/2024	3rd →	Differences between DIT-FFT & DIF-FFT and applications both
	4th →	Advantages & introduction to disadvantages of digital filters and differ- ence between analog & digital filter
15th week	1st →	Advantages of and disadvantages of digital filter.
22/7/2024	2nd →	Discussion of previous year question and assignment question (chapter-1 to 2)
to	3rd →	Discussion of previous year questions and assignment questions related to ch-3&4)
26/7/2024	4th →	Discussion of previous year questions and assignment questions related to chapter-4 & chapter-5
16th week	1st →	MCQ discussion based on chapter-1
29/7/2024	2nd →	MCQ discussion based on chapter-2
to	3rd →	MCQ discussion based on chapter-3
2/8/2024	4th →	MCQ discussion based on chapter-4

physical classes

17th week	class	Topic
9/8/2024	1st	→ MCQ discussion based on chapters
to	2nd	→ Doubt clearing class ch. 1 & 2 (~~all chapters~~)
14/8/2024	3rd	→ Doubt clearing class (ch. 3)
	4th	→ Doubt clearing class (ch 4 & 5)