Lesson Plan & Work-done Diary for AY: 2025-26 ODD Semester

Course with Code: Digital Signal Processing – BEC502				Faculty In Charge: Prof. Anupama Shetter				Sem & Sec :5thB	
Module	Class No.	Date Planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation	
MODULE-0	1		**Bridge Course-** Signals and Systems,	Chalk & Talk					
	2		**Bridge Course-** Laplace and Z transforms, frequency response,.	Chalk & Talk					
	3		**Bridge Course-** convolution , filtering and sampling	Chalk & Talk					
MODULE-1	1		Signals, Systems and Signal Processing	Chalk & Talk		Signals, Systems and Signal Processing			
	2		Classification of Signals	Chalk & Talk		Classification of Signals			
	3		The Concept of Frequency in Continuous Time and Discrete Time Sinusoidal Signals.	Chalk & Talk		The Concept of Frequency in Continuous Time and Discrete Time Sinusoidal Signals.			
	4		Discrete Time Signals	Chalk & Talk		Discrete Time Signals			
	5		Discrete Time Systems	Chalk & Talk		Discrete Time Systems			
	6		Analysis of Discrete Time Linear Time Invariant Systems.	Chalk & Talk		Analysis of Discrete Time Linear Time Invariant Systems.			
	7		Solving of Problems	Chalk & Talk		Solving of Problems			
	8		Solving of Problems	Chalk & Talk		Solving of Problems			

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MODULE-2	9		The z-Transform, Properties of the z-Transform (Statements only)	PPT		The z-Transform, Properties of the z-Transform (Statements only)		
	10		The System Function of a Linear Time Invariant system	PPT		The System Function of a Linear Time Invariant system		
	11		Frequency Domain sampling and Reconstruction of Discrete Time Signals	Chalk & Talk		Frequency Domain sampling and Reconstruction of Discrete Time Signals		
	12		The DFT, The DFT as Linear Transformation.	Chalk & Talk		The DFT, The DFT as Linear Transformation.		
	13		**Properties of DFT** :Periodicity	PPT		**Properties of DFT** :Periodicity		
	14		Linearity and Symmetry for real valued sequence	Chalk & Talk		Linearity and Symmetry for real valued sequence		
	15		Multiplication of two DFTs and Circular Convolution.	Chalk & Talk		Multiplication of two DFTs and Circular Convolution.		
	16		Solving of Problems	Chalk & Talk		Solving of Problems		

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MODULE-3	17		DFT Properties: Time reversal of a sequence	Chalk & Talk		DFT Properties: Time reversal of a sequence		
	18		Circular Time shift of a sequence & Circular frequency shift	Chalk & Talk		Circular Time shift of a sequence & Circular frequency shift		
	19		Complex conjugate property, Multiplication of two sequences	Chalk & Talk		Complex conjugate property ,Multiplication of two sequences		
	20		Parseval's theorem	Chalk & Talk		Parseval's theorem		
	21		Linear Filtering Methods based on the DFT	Chalk & Talk		Linear Filtering Methods based on the DFT		
	22		Direct Computation of the DFT,	Chalk & Talk		Direct Computation of the DFT,		
	23		Radix-2 FFT Algorithms: computation of DFT in decimation in time.	Chalk & Talk		Radix-2 FFT Algorithms: computation of DFT in decimation in time.		
	24		Computation of IDFT in decimation in time.	Chalk & Talk		Computation of IDFT in decimation in time.		

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MODULE-4	25		Design of FIR Filters: Characteristics of practical frequency-selective filters	Chalk & Talk		Design of FIR Filters: Characteristics of practical frequency-selective filters		
	26		Symmetric and Antisymmetric FIR filters	Chalk & Talk		Symmetric and Antisymmetric FIR filters		
	27		Design of Linear-phase FIR (low pass and High pass) filters using windows - Rectangular	Chalk & Talk		Design of Linear-phase FIR (low pass and High pass) filters using windows - Rectangular		
	28		Bartlett window	Chalk & Talk		Bartlett window		
	29		Hanning & Hamming window	Chalk & Talk		Hanning & Hamming window		
	30		Blackman window	Chalk & Talk		Blackman window		
	31		Structure for FIR Systems: Direct form	Chalk & Talk		Structure for FIR Systems: Direct form		
	32		Cascade form.	Chalk & Talk		Cascade form.		

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MODULE-5	33		IIR Filter Design: Infinite Impulse response Filter Format,	Chalk & Talk		IIR Filter Design: Infinite Impulse response Filter Format,		
	34		Bilinear Transformation Design Method	Chalk & Talk		Bilinear Transformation Design Method		
	35		Analog Filters using Low pass prototype transformation	Chalk & Talk		Analog Filters using Low pass prototype transformation		
	36		Normalized Butterworth Functions	Chalk & Talk		Normalized Butterworth Functions		
	37		Bilinear Transformation and Frequency Warping	Chalk & Talk		Bilinear Transformation and Frequency Warping		
	38		Bilinear Transformation Design Procedure	Chalk & Talk		Bilinear Transformation Design Procedure		
	39		Digital Butterworth Filter Design (Lowpass and Highpass) using BLT.	Chalk & Talk		Digital Butterworth Filter Design (Lowpass and Highpass) using BLT.		
	40		Realization of IIR Filters in Direct form I and II	Chalk & Talk		Realization of IIR Filters in Direct form I and II		

	Activity	Planned	Actual	Remarks
1	Theory Classes	40		
2	Assignments/Quizzes/ Self-study	2+5		
3	Tutorials/ Extra classes	3		
4	Internal Assessments	3		
5	ICT based Teaching (% of usage in Curriculum)	**100s%**		
Planning			**Execution**	
Faculty Signature:			**Faculty Signature:**	
HOD Signature:			**HOD Signature:**	