

GURU TEGH BAHADUR INSTITUTE OF TECHNOLOGY

Code No.:ECC-303

Paper: Digital Signal Processing

Branches:ECE

Semester:5th

th

Title	Number of Lectures
Review of Discrete Time Fourier Transform	1
Review of Z- transform	1
The Discrete Fourier Transform	1
DFT properties	1
computation of the DFT of real sequences	1
Circular Convolution using the DFT	1
Linear to circular convolution	1
circular to Linear convolution	1
Linear filtering methods based on the DFT	1
Principal Of FFT ,FFT Algorithms	2
DIT FFT Algorithms	2
DIF FFT Algorithms	2
Symmetric and anti-symmetric FIR filters	1
Design of Linear Phase FIR filters	1
Direct, Cascade, Frequency Sampling, transposed structure	2
FIR filter Design based using window technique	2
FIR filter design based on Frequency Sampling approach	2
Lattice structures, Lattice and Lattice-Ladder Structures,	2
Discrete Hilbert Transform.	1
1st Sessional Exam	
Impulse invariance method of IIR filter design	1
Bilinear Transform method of IIR Filter Design,	1
Butterworth and Chebyshev IIR Filters;	1
Frequency transformation in Digital Domain, Direct, Cascade, Parallel & transposed structure	2
Design of Digital IIR notch filters	1
Lattice filter design,	1
Quantization Errors in Digital Signal Processing:	1
Representation of numbers,	1

Quantization of filter coefficients, Round-off Effects in digital filters.	1
Multirate Digital Signal Processing: Decimation, Interpolation,	1
Sampling rate conversion by a rational factor;	1
Frequency domain characterization of Interpolator and Decimator	1
FIR filter design based on Frequency Sampling approach Polyphase decomposition.	1

TEXT BOOKS:

1. Sanjit K. Mitra, "DSP a Computer based approach" , TMH, 2nd Ed., 2001.
2. Allan Y. Oppenheim & Ronald W. Schater , "Digital Signal Processing", PHI, 2004.
3. J. G. Proakis and D.G. Manolakis, "Digital Signal Processing, Principals, Algorithms, and Applications", Pearson Education, 5th ed.

REFERENCE BOOKS:

1. J. R. Jhohnson, "Intorduction to Digital Signal Processing", PHI, 2000.
2. B. Somanthan Nair, "Digital Signal Processing: Theory, Analysis & Digital Filter Design", PHI, 2004.