Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electronics and Communication Engineering

Lesson plan of faculty member for the academic year 2018–19

Class: III B Tech Branch-Section: ECE-A

Semester: II

Subject: Digital Signal Processing Lectures per week: 4

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Introduction and Realization of Digital Filters		
1	Introduction	28 December 2019
2	Basics	29 December 2019
3	Elementary signals and their relationships	02 January 2019
4	Discrete Time Signals & Sequences	04 January 2019
5	Conversion of continuous to discrete signal	05 January 2019
6	Normalized Frequency, DTS Problems	08 January 2019
7	Linear Shift Invariant Systems	09 January 2019
8	Stability and Causality	11 January 2019
9	Linear differential equation to difference equation	12 January 2019
10	Linear Constant Coefficient Difference Equations	16 January 2019
11	Frequency Domain Representation of Discrete Time Signals and Systems	18 January 2019
12	Applications of Z – Transform	19 January 2019
13	Solution of Difference Equations,ZTransform Problem	22 January 2019
14	System Function	23 January 2019
15	Stability Criterion	25 January 2019
16	Frequency Response of Stable Systems, Problems	29 January 2019
17	Realization of Digital Filters – Direct	30 January 2019
18	Realization of Digital Filters - Canonic	05 February 2019
19	Cascade and Parallel Forms	06 February 2019
UNIT-II: **Discrete Fourier Transforms and Fast Fourier Transforms**		
20	Properties of DFT	08 February 2019
21	Linear Convolution of Sequences using DFT, Problem	12 February 2019
22	Computation of DFT: Over-Lap Add Method	13 February 2019
23	Over-Lap Save Method	15 February 2019
24	Relation between DTFT, DFS, DFT and Z-Transform	16 February 2019
25	Fast Fourier Transforms (FFT), Radix-2 Decimation-in-Time	22 February 2019
26	Decimation-in-Frequency FFT Algorithms	23 February 2019
27	Inverse FFT	26 February 2019
28	FFT with General Radix-N	28 February 2019
UNIT-III: **IIR Digital Filters**		
29	Analog filter approximations – Butterworth	01 March 2019
30	Analog filter approximations – Chebyshev	02 March 2019
31	Design of IIR Digital Filters, Analog Filters Problems	05 March 2019
32	Step and Impulse Invariant Techniques	06 March 2019
33	Bilinear Transformation Method	08 March 2019
34	Spectral Transformations	12 March 2019
UNIT-IV: **FIR Digital Filters**		
35	Characteristics of FIR Digital Filters	13 March 2019
36	Frequency Response	15 March 2019

Lecture Number	Topics to be covered	Date (s)
37	Design of FIR Filters: Fourier Method,	16 March 2019
38	Digital Filters using Window Techniques	19 March 2019
39	Frequency Sampling Technique	20 March 2019
40	Comparison of IIR & FIR filters	22 March 2019
UNIT-V: **Multirate Digital Signal Processing and Finite Word Length Effects**		
41	Introduction	23 March 2019
42	Down Sampling, Upsampling	25 March 2019
43	Decimation, Interpolation	26 March 2019
44	Sampling Rate Conversion	29 March 2019
45	Conversion of Band Pass Signals	30 March 2019
46	Concept of Resampling, Problems-sampling	02 April 2019
47	Applications of Multi Rate Signal Processing	03 April 2019
48	Overflow Oscillations	09 April 2019
49	Round-off Noise in IIR Digital Filters	10 April 2019
50	Computational Output Round off Noise	12 April 2019
51	Methods to Prevent Overflow, Tradeoff between Round Off	13 April 2019
52	Overflow Noise, Measurement of Coefficient Quantization	16 April 2019
53	Effects through Pole-Zero Movement, Dead Band Effects	17 April 2019
54	Revision	20 April 2019

TEXT BOOKS:

1. Digital Signal Processing, Principles, Algorithms, and Applications: John G. Proakis, Dimitris G. Manolakis, Pearson Education / PHI, 2007.
2. Discrete Time Signal Processing – A. V. Oppenheim and R.W. Schaffer, PHI, 2009
3. Fundamentals of Digital Signal Processing – Loney Ludeman, John Wiley, 2009

REFERENCES:

1. Digital Signal Processing – Fundamentals and Applications – Li Tan, Elsevier, 2008
2. Fundamentals of Digital Signal Processing using MATLAB – Robert J. Schilling, Sandra L. Harris, Thomson, 2007
3. Digital Signal Processing - A Practical approach, Emmanuel C. Ifeachor and Barrie W. Jervis, 2nd Edition, Pearson Education, 2009

Name and signature of the faculty: Bremiga G G ----

Name and signature of Head of the Department: Shribala N ----