Bhoj Reddy Engineering College for Women: Hyderabad
Department of Electronics and Communication Engineering
Lesson plan of faculty member for the academic year 2017–18

Class: III B Tech　　　　　Branch-Section: ECE-A　　　　　Semester:II
Subject: Digital Signal Processing　　　　　Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Introduction		
1	Introduction to Digital Signal processing	18 December 2017
2	Discrete Time signals and sequences	20 December 2017
3	LTI system, Stability and causality	21 December 2017
4	Linear constant co-efficient difference equation: Step Response	22 December 2017
5	Linear constant co-efficient difference equation: Impulse Response	23 December 2017
6	Tutorial (G1, G3, G2):Problems on DT Signals and Sequences	20,21,23December 2017
7	Frequency domain representation of DT signals	27 December 2017
8	Problem on LCCDE	28 December 2017
9	**Realization of Digital filters:** Applications of Z-Transform	29 December 2017
10	Solution of difference equation of Digital filters	30 December 2017
11	Tutorial (G1, G3, G2):Problems on LCCDE	27,28,30 December 2017
12	System function, Stability Criteria	3 January 2018
13	Frequency Response of Stable systems	4 January 2018
14	Realization of Digital filters using : Direct form andCanonic form	5 January 2018
15	Realization of Digital filters using Cascade form and Parallel forms	6 January 2018
16	Tutorial (G1, G3, G2):Problem solving on Realization of Digital filters	3,4,6 January 2018
UNIT-II: Discrete Fourier series		
17	DFS representation of periodic sequences	8 January 2018
18	Properties of Discrete Fourier series	10 January 2018
19	Discrete Fourier transform, Properties of Discrete Fourier transform	11 January 2018
20	Linear convolution using Discrete Fourier transform	12 January 2018
21	Tutorial (G1, G3, G2): Problem on Discrete Fourier series	10,11,13 January 2018
22	Computation of Discrete Fourier transform: Over-lap Add method,	17 January 2018
23	Computation of Discrete Fourier transform: Over-lap Save method	18 January 2018
24	Tutorial (G1, G3, G2): Problem on Over-lap Add, Save method	19 January 2018
25	Relation between DTFT, DFS, DFT and Z-Transform	20 January 2018
26	Tutorial (G1, G3, G2): Problem on Over-lap Add, Save method	17,18,20 January 2018
27	**Fast Fourier transform:** Fast Fourier transform,Radix-2 DIT Fast Fourier transform algorithm	24 January 2018
28	Radix-2 DIF Fast Fourier transform algorithm	25 January 2018
29	Inverse DFT with general radix	27 January 2018
30	Tutorial (G1, G3, G2):Problem solving on Fast Fourier Transforms	24,25,27 January 2018
31	Inverse DFT with general radix	29 January 2018
32	Inverse FFT with general radix	31 January 2018
33	Inverse FFT with general radix	1 February 2018
34	Problem solving on FFT with general radix	2 February 2018
35	Problem solving on FFT with general radix	3 February 2018
36	Tutorial (G1, G3, G2):Problem solving on Inverse FFT with general radix	31 January ;1,3 February 2018
UNIT-III: : IIR Digital filters		
37	Analog filter Approximations,: Butterworth Approximations	5 February 2018
38	Analog filter Approximations: Chebyshev Type I Approximations	10 February 2018

39	Tutorial (G2):Problems on Butterworth Approximation	10 February 2018
40	Analog filter Approximations: Chebyshev Type II Approximations	12 February 2018
41	Design of IIR Digital filters from analog filters	14 February 2018
42	Step and Impulse Invariant Techniques	15 February 2018
43	Impulse Invariant Transformation	16 February 2018
44	Impulse Invariant Transformation	17 February 2018
45	Tutorial (G1, G3, G2):Problem solving on Impulse Invariant Transformation	14,15,17 February 2018
46	design of IIR digital filters	19 February 2018
47	Bilinear Transformation Method	21 February 2018
48	Problems on Transformation	22 February 2018
49	Problems on Transformation	23 February 2018
50	Problem solving on transformations	24 February 2018
51	Tutorial (G1, G3, G2):Problem solving on transformations	21,22,24February 2018
52	Spectral Transformation	26 February 2018
53	Spectral Transformation	28 February 2018
54	Tutorial (G1, G3, G2):Problem on Spectral Transformation	2 March 2018
UNIT-IV: FIR Digital Filters		
55	Characteristics of FIR Digital Filters	3 March 2018
56	Tutorial (G1, G3, G2):Problem on Spectral Transformation	28 February, 3 March 2018
57	Frequency response of Linear phase FIR filter	5 March 2018
58	Design of Linear phase FIR filter using Fourier Method	7 March 2018
59	Design of Linear phase FIR filter using frequency Sampling technique	8 March 2018
60	Design of Linear phase FIR filter using window technique	9 March 2018
61	Comparison of FIR and IIR Filters	10 March 2018
62	Tutorial (G1, G3, G2):Problem solving on FIR filters	7,8,10 March 2018
63	Problem on FIR filters	12 March 2018
64	Problem on FIR filters	14 March 2018
65	Problem on IIR Filters	15 March 2018
66	Problem on IIR Filters	16 March 2018
67	Problem on FIR filter design	17 March 2018
68	Tutorial (G1, G3, G2):Problem solving on FIR and IIR filters	14,15,17 March 2018
UNIT-V: Multi rate Digital signal Processing		
69	Introduction	19 March 2018
70	Down Sampling ,Decimation	21 March 2018
71	Up sampling, Interpolation	22 March 2018
72	Sampling Rate Conversion	23 March 2018
73	Dead band effects	24 March 2018
74	Tutorial (G1, G3, G2):Problem on Down Sampling	21,22,24 March 2018
75	**Finite Word Length Effects :**Limit cycles, Overflow oscillations, Round-off noise in IIR digital filters	28 March 2018
76	Computational output round off noise, Methods to prevent overflow	29 March 2018
77	Tradeoff between round off and overflow noise, Dead band effects	31 March 2018
78	Tutorial (G3,G1,G2):Problem on finite word length effects	28,29,31 March 2018
79	Revision	2 April 2018

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

REFERENCE BOOKS:
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 - S.Salivahanan. A.Vallavaraj and Cgnanapriya.TMH.2009

Name and signature of the faculty: B Eleena   ----

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