Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electronics and Communication Engineering

Lesson Plan of faculty member for the academic year 2015– 2016

Name of the faculty member and Department : A.JYOTHIRMAYI , ECE

Subject: Digital communications Class: III B.Tech.

Branch & Section: ECE-A Semester: II

No. of lectures per week: 4+1(Tutorial)

Lecture Number	Date(s)	Topic to be covered
	UNIT- I	**Elements of Digital communication system**
1	09/12/15	Introduction to Digital communication systems
2	10/12/15	Model of Digital communication system(extra)
3	11/12/15	Digital representation of analog signal(extra) , Certain issues in Digital transmission(extra)
4	12/12/15	Hartley Shannon law, Bandwidth-S/N tradeoff
5	07/12/15,08/12/15, 12/12/15	Tutorial (G2, G3, G1): Comparisons between Analog and Digital communications
6	16/12/15	Sampling theorem, Advantages of Digital communication
		Pulse Code Modulation
7	17/12/15	PCM generation and reconstruction
8	18/12/15	Quantization noise of PCM
9	19/12/15	Quantization noise of PCM
10	14/12/15,15/12/15, 19/12/15	Tutorial (G2,G3,G1): Problems on Shannon theorem
11	23/12/15	Non- Uniform Quantization, Companding
13	21/12/15,22/12/15	Tutorial (G2,G3): Problems on Sampling theorem
14	30/12/15	Differential PCM, Adaptive Differential PCM
15	31/12/15	Delta modulation, Adaptive Delta Modulation
16	01/01/16	Noise in PCM
17	02/01/16	Noise in Delta modulation
18	28/12/15,29/12/15, 02/01/16	Tutorial(G2, G3,G1): Problems on Quantization Noise and PCM
19	06/01/16	Comparisons of modulation techniques
	UNIT – II	**Digital Modulation Techniques**
20	07/01/16	Introduction, ASK, ASK Modulator
21	08/01/16	Coherent ASK detector, Non-coherent ASK detector
22	09/01/16	FSK, Bandwidth and Frequency spectrum of FSK
23	04/01/16,05/01/16, 09/01/16	Tutorial (G2, G3, G1): Problems on Quantization Error of DPCM and DM
24	13/01/16	Non-Coherent FSK detector, Coherent FSK detector
26	16/01/16	FSK detection using PLL, Binary phase shift Keying(BPSK)
27	11/01/16,12/01/16, 16/01/16	Tutorial (G2, G3, G1): Problems on Delta modulation and adaptive delta modulation
28	20/01/16	Coherent PSK detection
29	21/01/16	Quadrature Phase shift keying
30	22/01/16	Differential PSK
	UNIT – III	**Base band transmission and optimal reception**
31	23/01/16	Pulse shaping for optimal transmission, Optimum receiver

32	18/01/16,19/01/16 23/01/16	Tutorial (G2, G3, G1): Problems on Amplitude Shift Keying
33	27/01/16	A base band signal receiver, Probability of Error
34	28/01/16	Optimal of coherent reception
35	29/01/16	Signal space representation, Probability of Error
36	30/01/16	Eye diagrams, cross talk
37	25/01/16,30/01/16	Tutorial (G2,G1): Problems on FSK
		Information theory
38	24/02/16	Introduction to Information Theory
39	25/02/16	Information and Entropy
40	26/02/16	Conditional Entropy
41	27/02/16	Redundancy
42	22/02/16,23/02/16, 27/02/16	Tutorial (G2, G3, G1): Problems on DPSK
43	02/03/16	Shannon Fano coding
44	03/03/16	Mutual Information
45	04/03/16	Information loss due to noise
46	05/03/16	Huffmann coding
47	29/02/16,01/03/16, 05/03/16	Tutorial (G2, G3, G1): Problems on information theory
48	09/03/16	Variable length coding
49	10/03/16	Source coding to increase average information per bit
50	11/03/16	Lossy Source coding
51	12/03/16	Loss less source coding
52	07/03/16,08/03/16, 12/03/16	Tutorial (G2, G3, G1): Problems on Huffmann codes
	UNIT – IV	**Linear Block codes**
53	16/03/16	Introduction to Linear block codes
54	17/03/16	Matrix description of Linear block codes
55	18/03/16	Error detection and Error correction capabilities of linear block codes
56	19/03/16	Introduction to cyclic codes, Cyclic codes Algebraic structure
57	14/03/16,15/03/16, 19/03/16	Tutorial (G2, G3, G1): Problems on linear block codes
58	24/03/16	Encoding, Syndrome calculation and decoding
		Convolutional codes
59	26/03/16	Convolutional codes and decoding using state diagrams
60	21/03/16,22/03/16, 26/03/16	Tutorial (G2, G3, G1): Problems on cyclic codes
61	30/03/16	Convolutional codes and decoding using tree diagrams
62	31/03/16	Convolutional codes and decoding using trellis diagrams
63	01/04/16	Decoding using Viterbi algorithm
64	02/04/16	Convolutional coding and decoding
65	28/03/16,29/03/16, 02/04/16	Tutorial (G2, G3, G1): Problems on cyclic codes
	UNIT-V	**Spread Spectrum Modulation**
66	06/04/16	Use of spread spectrum
67	07/04/16	Direct Sequence spread spectrum
68	09/04/16	Code division multiple access
69	04/04/16,09/04/16	Tutorial (G3, G1): Problems on covolutional codes
70	13/04/16	FHSS
71	16/04/16	Ranging using DSSS
72	11/04/16,12/04/16, 16/04/16	Tutorial (G2, G3,G1): Problems on PN sequences

TEXT BOOK:

[1]. Principles of Communication Systems – Herbert Taub, Donald L Schlling, GoutamShah, 3rd Edition ,McGraw-Hill,2008 (for Units- Vand VIII).

[2]. Digital and Analog Communication Systems- Sam Shanmugam, John Wiley,2005 (for Units- I,III,IV,VI and VII).

REFERENCE BOOKS:

[1]. Digital Communications: John G.Proakis, Masoud Saheli-5th Edition , McGraw-Hill, 2008.

[2]. Digital Communication – Simon Haykin, John Wiley,2005.(for Unit II)

[3]. Digital Communications – Ian A.Glover,PeterM.Grant, 2nd Edition, PearsonEdu.,2008.

[4]. Communication Systems- B.P.Lathi, BSPublication,2006.

Name : A. Jyothirmayi Signature of the faculty with date:

HoD Signature: