PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY
Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: -Digital Communication **Subject Code: - EC-202A**
Year: - 2nd **Semester: - 4th**

Lecture No	Unit No	Topic	References
1	**1**	**Introduction to Modulation** and its Types: Pulse modulation	
2	1	Sampling process	Haykin S., "Communications Systems
3	1	Quantization	Haykin S., "Communications Systems
4	1	Pulse Amplitude Modulation	Haykin S., "Communications Systems
5	1	Pulse code modulation (PCM)	Haykin S., "Communications Systems
6	1	Noise considerations in PCM	Haykin S., "Communications Systems
7	1	Differential pulse code modulation (DPCM)	Haykin S., "Communications Systems
8	1	Delta modulation (DM)	Haykin S., "Communications Systems
9	1	Noise in delta modulation	Haykin S., "Communications Systems

10	1	Variants of DM	Haykin S., "Communications Systems
11	1	The O/P signal to quantization noise ratio in delta modulation	Haykin S., "Communications Systems
12	1	O/P signal to noise ratio in delta modulation	Haykin S., "Communications Systems
13	1	Time Division multiplexing	Haykin S., "Communications Systems
14	**2**	**Base Band Pulse Transmission**: Matched filter and its properties	Haykin S., "Communications Systems
15	2	Average probability of symbol error in binary enclosed PCM receiver	Haykin S., "Communications Systems
16	2	Intersymbol interference	Haykin S., "Communications Systems
17	2	Nyquist criterion for distortion less base band binary transmission	Haykin S., "Communications Systems
18	2	Ideal Nyquist channel raised cosine spectrum	Haykin S., "Communications Systems
19	2	Correlative level coding	Haykin S., "Communications Systems
20	2	Duo binary signaling	Haykin S., "Communications Systems
21	2	Tapped delay line equalization	Haykin S., "Communications Systems
22	2	Adaptive equalization	Haykin S., "Communications Systems

23	2	LMS algorithm, Eye pattern	Haykin S., "Communications Systems
24	2	Elements of Detection Theory	Haykin S., "Communications Systems
25	2	Optimum detection of signals in noise	Haykin S., "Communications Systems
26	2	Coherent communication with waveforms- Probability of Error evaluations.	Haykin S., "Communications Systems
27	**3**	**Pass band Digital Modulation Schemes**- ASK	Haykin S., "Communications Systems
28	3	Phase Shift Keying (PSK)	Haykin S., "Communications Systems
29	3	Frequency Shift Keying (FSK)	Haykin S., "Communications Systems
30	3	Quadrature Amplitude Modulation (QAM)	Internet
31	3	Continuous Phase Modulation and Minimum Shift Keying.	Internet
32	3	Signal space diagram of ASK, FSK, PSK, QAM, MSK	Haykin S., "Communications Systems
33	3	Spectra of ASK, FSK, PSK, QAM, MSK	Haykin S., "Communications Systems
34	3	Effect of intersymbol interference	Haykin S., "Communications Systems
35	3	Bit symbol error probabilities,	Haykin S., "Communications Systems
36	3	Synchronization.	Haykin S., "Communications Systems

37	**4**	**Unit 4:** Digital Modulation tradeoffs	Internet
38	4	Optimum demodulation of digital signals over band-limited channels-	Internet
39	4	Maximum likelihood sequence detection (Viterbi receiver).	Internet
40	4	Equalization Techniques Part 1	Haykin S., "Communications Systems
41	4	Equalization Techniques Part 2	Haykin S., "Communications Systems
42	4	Synchronization and Carrier recovery for Digital modulation	Internet

Text Books:

1. Haykin S., "Communications Systems", John Wiley and Sons, 2001.
2.Proakis J. G. and Salehi M., "Communication Systems Engineering", Pearson Education, 2002.
3.Taub H. and Schilling D.L., "Principles of Communication Systems", Tata McGraw Hill, 2001.

Reference Books:

1.Proakis J.G., ``Digital Communications", 4th Edition, McGraw Hill, 2000.
2.Lathi B.P., " Modern Digital and Analog Communication", 4th edition, Oxford university Press, 2010