DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

ACADEMIC LESSION PLAN FOR WINTER SEMESTER 2023- 24	
JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA	
Name of the Faculty: JYOTI NAIK	Academic Year:2023-24
Course No.: TH-3	Course Name: ANALOG AND DIGITAL COMMUNICATION
Program: Diploma	Branch: ELECTRONICS & TELECOMMUNICATION
Year/Sem: 3rd / 5th	Section: A
Total Period s : 75 P/ Sem	End Semester Exam : 80marks
Internal Assessment : 20 Marks	TOTAL MARKS :100 Marks

Sl. No.	Period	Time (min)	Unit/ Chapter	Topic to be covered	Teaching method
1.	1.	55	1	Elements of Communication Systems.	Black board
2.	2.	55	1	Communication Process- Concept of Elements of Communication System & its Block diagram	Black board
3.	3.	55	1	Source of information & Communication Channels.	Black board
4.	4.	55	1	Classification of Communication systems - Line & Wireless	Black board
5.	5.	55	1	Classification of Communication systems -Radio	Black board
6.	6.	55	1	Modulation Process, Need of modulation and classify modulation process	Black board
7.	7.	55	1	Analog and Digital Signals & its conversion.	Black board
8.	8.	55	1	Basic concept of Signals & Signals classification - Analog	Black board
9.	9.	55	1	Basic concept of Signals & Signals classification - Digital	Black board
10.	10.	55	1	Bandwidth limitation	Black board
11.	11.	55	2	Amplitude (linear) Modulation System	Black board
12.	12.	55	2	Amplitude modulation & derive the expression for amplitude modulation signal	Black board
13.	13.	55	2	Power relation in AM wave	Black board
14.	14.	55	2	find Modulation Index	Black board
15.	15.	55	2	Generation of Amplitude Modulation(AM)- Linear level AM modulation only	Black board
16.	16.	55	2	Generation of Amplitude Modulation(AM)- Linear level AM modulation only	Black board

17.	17.	55	2	Demodulation of AM waves -liner diode detector	Black board
18.	18.	55	2	Demodulation of AM waves -square law detector	Black board
19.	19.	55	2	Demodulation of AM waves -PLL	Black board
20.	20.	55	2	Explain SSB signal and DSBSC signal	Black board
21.	21.	55	2	Methods of generating & detection SSB-SC signal (Indirect method only)	Black board
22.	22.	55	2	Methods of generation DSB-SC signal (Ring Modulator)	Black board
23.	23.	55	2	detection of DSB-SC signal (Synchronous detection)	Black board
24.	24.	55	2	Concept of Balanced modulators	Black board
25.	25.	55	2	Vestigial Side Band Modulation	Black board
26.	26.	55	3	Angle Modulation Systems	Black board
27.	27.	55	3	Concept of Angle modulation & its types (PM & FM)	Black board
28.	28.	55	3	Basic principle of Frequency Modulation	Black board
29.	29.	55	3	Frequency Spectrum of FM Signal	Black board
30.	30.	55	3	Expression for Frequency Modulated Signal & Modulation Index and sideband of FM signal	Black board
31.	31.	55	3	Explain Phase modulation and difference of FM & PM)- working principle with Block Diagram	Black board
32.	32.	55	3	Compare between AM and FM modulation (Advantages & Disadvantages)	Black board
33.	33.	55	3	Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram	Black board
34.	34.	55	3	Methods of FM Demodulator or detector (Forster-Seely & Ratio detector)- working principle with Block Diagram	Black board
35.	35.	55	3	Methods of FM Demodulator or detector (Forster-Seely & Ratio detector)- working principle with Block Diagram	Black board
36.	36.	55	4	Classification of Radio Receivers	Black board
37.	37.	55	4	Define the terms Selectivity, Sensitivity	Black board
38.	38.	55	4	Define the terms Fidelity and Noise Figure	Black board
39.	39.	55	4	AM transmitter - working principle with Block Diagram	Black board
40.	40.	55	4	Concept of Frequency conversion	Black board
41.	41.	55	4	Concept of RF amplifier & IF amplifier ,Tuning, S/N ratio	Black board
42.	42.	55	4	Working of super heterodyne radio receiver with Block diagram	Black board
43.	43.	55	4	Working of FM Transmitter & Receiver with Block Diagram.	Black board
44.	44.	55	5	ANALOG TO DIGITAL CONVERSION & PULSE MODULATION SYSTEM.	Black board
45.	45.	55	5	Concept of Sampling Theorem	Black board
46.	46.	55	5	Nyquist rate & Aliasing	Black board
47.	47.	55	5	Sampling Techniques (Instantaneous, Natural, Flat Top)	Black board
48.	48.	55	5	Analog Pulse Modulation - Generation and	Black board

				detection of PAM system with the help of Block diagram & comparison of all above.	
49.	49.	55	5	Analog Pulse Modulation - Generation and detection of PWM system with the help of Block diagram & comparison of all above.	Black board
50.	50.	55	5	Analog Pulse Modulation - Generation and detection of PPM system with the help of Block diagram & comparison of all above.	Black board
51.	51.	55	5	Concept of Quantization of signal & Quantization error.	Black board
52.	52.	55	5	Generation of PCM system with Block diagram & its applications	Black board
53.	53.	55	5	Demodulation of PCM system with Block diagram & its applications	Black board
54.	54.	55	5	Companding in PCM & Vocoder	Black board
55.	55.	55	5	Time Division Multiplexing & explain the operation with circuit diagram	Black board
56.	56.	55	5	Generation of Delta modulation with Block diagram.	Black board
57.	57.	55	5	Demodulation of Delta modulation with Block diagram.	Black board
58.	58.	55	5	Generation of DPCM with Block diagram	Black board
59.	59.	55	5	Demodulation of DPCM with Block diagram	Black board
60.	60.	55	5	Comparison between PCM, DM , ADM & DPCM	Black board
61.	61.	55	6	DIGITAL MODULATION TECHNIQUES	Black board
62.	62.	55	6	Concept of Multiplexing (FDM & TDM)- (Basic concept , Transmitter & Receiver)	Black board
63.	63.	55	6	Digital modulation formats.	Black board
64.	64.	55	6	Advantages of digital communication system over Analog system	Black board
65.	65.	55	6	Digital modulation techniques & types.	Black board
66.	66.	55	6	Generation and Detection of binary ASK, FSK, PSK	Black board
67.	67.	55	6	Generation and Detection of binary QPSK, QAM	Black board
68.	68.	55	6	Generation and Detection of binary MSK, GMSK	Black board
69.	69.	55	6	Working of T1-Carrier system	Black board
70.	70.	55	6	Spread Spectrum & its applications	Black board
71.	71.	55		Working operation of Spread Spectrum Modulation Techniques (DS-SS)	Black board
72.	72.	55	6	Working operation of Spread Spectrum Modulation Techniques (FH-SS)	Black board
73.	73.	55	6	Define bit, Baud, symbol & channel capacity formula.(Shannon Theorems)	Black board
74.	74.	55	6	Application of Different Modulation Schemes	Black board
75.	75.	55	6	Types of Modem & its Application	Black board