

LESSON PLAN (WINTER-2024)

Discipline: ETC	Semester:5th	Name of the Teaching Faculty: SOMA DASH
Subject:ANALOG & DIGITAL COMMUNICATION	No of Days /per week class allotted: 5	Semester From date: 01.07.2024 To date: 08.11.2024 No of Weeks:19
Week	Class Day	Theory / Practical Topics
1st	1st	Unit-1: Elements of Communication Systems.(10) 1.1 Communication Process- Concept of Elements of Communication System & its Block diagram
	2nd	1.2 Source of information & Communication Channels.
	3rd	1.3 Classification of Communication systems (Line & Wireless or Radio)
	4th	1.4 Modulation Process, Need of modulation and
	5th	classify modulation process
2nd	1st	1.5 Analog and Digital Signals & its conversion.
	2nd	Continue
	3rd	1.6 Basic concept of Signals &
	4th	Signals classification (Analog and Digital)
	5th	1.7 Bandwidth limitation
3rd	1st	Unit-2: Amplitude (linear) Modulation System (15) 2.1 Amplitude modulation & derive the expression for amplitude modulation signal,
	2nd	power relation in AM wave & find Modulation Index.
	3rd	2.2 Generation of Amplitude Modulation(AM)- Linear level AM modulation only
	4th	2.3 Demodulation of AM waves (liner diode detector, square law detector & PLL)
	5th	Continue
4th	1st	2.4 Explain SSB signal and
	2nd	DSBSC signal
	3rd	2.5 Methods of generating & detection SSB-SC signal (Indirect method only)
	4th	Continue
	5th	2.6 Methods of generation DSB-SC signal (Ring Modulator) and
5th	1st	detection of DSB-SC signal (Synchronous detection)
	2nd	2.7 Concept of Balanced modulators
	3rd	2.8 Vestigial Side Band Modulation
	4th	Unit-3: Angle Modulation Systems(10) 3.1 Concept of Angle modulation & its types (PM & FM)
	5th	3.2 Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.
6th	1st	3.3 Expression for Frequency Modulated Signal & Modulation Index and sideband of FM signal
	2nd	Continue
	3rd	3.4 Explain Phase modulation & difference of FM & PM)- working principle with Block Diagram
	4th	3.5 Compare between AM and FM modulation (Advantages & Disadvantages)
	5th	3.6 Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram
7th	1st	3.7 Methods of FM Demodulator or detector (Forster-Seely & Ratio detector)- working principle with Block Diagram
	2nd	Continue
	3rd	Unit-4: AM & FM TRANSMITTER & RECEIVER(08) 4.1 Classification of Radio Receivers
	4th	4.2 Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure
	5th	4.3 AM transmitter - working principle with Block Diagram

8th	1st	Continue
	2nd	Continue
	3rd	4.5 Working of super heterodyne radio receiver with Block diagram
		4.6 Working of FM Transmitter & Receiver with Block Diagram.
	4th	Unit-5: ANALOG TO DIGITAL CONVERSION & PULSE MODULATION SYSTEM.(17) 5.1 Concept of Sampling Theorem , Nyquist rate & Aliasing
9th	1st	5.2 Sampling Techniques (Instantaneous, Natural, Flat Top)
	2nd	5.3 Analog Pulse Modulation - Generation and detection of PAM, PWM & PPM system with the help of Block diagram & comparison of all above.
	3rd	Continue
	4th	Continue
	5th	5.4 Concept of Quantization of signal & Quantization error.
10th	1st	5.5 Generation & Demodulation of PCM system with Block diagram & its applications.
	2nd	Continue
	3rd	5.6 Companding in PCM & Vocoder
	4th	5.7 Time Division Multiplexing & explain the operation with circuit diagram.
	5th	5.8 Generation & demodulation of Delta modulation with Block diagram.
11th	1st	Continue
	2nd	5.9 Generation & demodulation of DPCM with Block diagram.
	3rd	Continue
	4th	5.10 Comparison between PCM, DM , ADM & DPCM
	5th	Continue
12th	1st	Unit-6: DIGITALMODULATION TECHNIQUES(15) 6.1 Concept of Multiplexing (FDM & TDM)- (Basic concept , Transmitter & Receiver) & Digital modulation formats.
	2nd	Continue
	3rd	6.2 Advantages of digital communication system over Analog system
	4th	6.3 Digital modulation techniques & types.
	5th	Continue
13th	1st	6.4 Generation and Detection of binary ASK, FSK, PSK, QPSK, QAM, MSK, GMSK.
	2nd	Continue
	3rd	Continue
	4th	Continue
	5th	Continue
14th	1st	6.5 Working of T1-Carrier system.
	2nd	Continue
	3rd	6.6 Spread Spectrum & its applications
	4th	Continue
	5th	6.7 Working operation of Spread Spectrum Modulation Techniques (DS-SS & FH-SS).
15th		
		PUJA VACATION
16th	1st	Continue
	2nd	Continue
	3rd	Continue

	4th	6.8 Define bit, Baud, symbol & channel capacity formula.(Shannon Theorems)
	5th	Continue
17th	1st	Continue
	2nd	6.9 Application of Different Modulation Schemes.
	3rd	Continue
	4th	Continue
	5th	6.10 Types of Modem & its Application
18th	1st	Revision
	2nd	Revision
	3rd	Revision
	4th	Revision
	5th	Revision
19 TH	1st	Revision
	2nd	Revision
	3rd	Revision
	4th	Revision
	5th	Revision

Smt.Soma Dash