DISCIPLINE: Electrical & Electronics Engg.	SEMESTER: 5th Semester	NAME OF THE TEACHING FACULTY: Mr.Bibhuti Gampai , PTGF IN EEE
SUBJECT: ANALOG & DIGITAL COMMUNICATION (TH-3)	NO OF DAYS/PER WEEK CLASSES ALLOTTED:4	SEMESTER FROM DATE: 14.07.2025 TO DATE: 15.11.2025 NO OF WEEKS:15

Week	Class Day	Topics
		1. ELEMENTS OF COMMUNICATION SYSTEMSS
1st	1ST	Communication Process- Concept of Elements of Communication System & its Block diagram
	2ND	Source of information & Communication Channels.
	3RD	Classification of Communication systems (Line & Wireless or Radio)
	4TH	ASSIGNMENT
2nd	1ST	Modulation Process, Need of modulation and classify modulation process
	2ND	Analog and Digital Signals & its conversion.
	3RD	Basic concept of Signals & Signals classification (Analog and Digital)
	4TH	Bandwidth limitation
3rd	1ST	TEST
		2.AMPLITUDE (LINEAR) MODULATION SYSTEM
	2ND	Amplitude modulation & derive the expression for amplitude modulation signal, power relation in AM wave & find Modulation Index.
	3RD	Generation of Amplitude Modulation(AM)- Linear level AM modulation only
	4TH	Demodulation of AM waves (liner diode detector, square law detector & PLL)
4th	1ST	Explain SSB signal and DSBSC signal
	2ND	ASSIGNMENT
	3RD	Methods of generating & detection SSB-SC signal (Indirect method only)
	4TH	Methods of generation DSB-SC signal (Ring Modulator) and detection of DSB-SC signal (Synchronous detection)
5th	1ST	Concept of Balanced modulators
	2ND	Vestigial Side Band Modulation
	3RD	**TEST**
		3. ANGLE MODULATION SYSTEMS.
	4TH	Concept of Angle modulation & its types (PM & FM)
6th	1ST	Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.
	2ND	Expression for Frequency Modulated Signal & Modulation Index and sideband of FM signal

	3RD	Explain Phase modulation & difference of FM & PM)- working principle with Block Diagram
	4TH	ASSIGNMENT
7th	1ST	Compare between AM and FM modulation (Advantages & Disadvantages)
	2ND	Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram
	3RD	Methods of FM Demodulator or detector (Forster-Seely & Ratio detector)- working principle with Block Diagram
	4TH	TEST
		4. AM & FM TRANSMITTER & RECEIVER
8th	1ST	Classification of Radio Receivers
	2ND	Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure
	3RD	AM transmitter - working principle with Block Diagram
	4TH	ASSIGNMENT
9th	1ST	Concept of Frequency conversion, RF amplifier & IF amplifier ,Tuning, S/N ratio
	2ND	Working of super heterodyne radio receiver with Block diagram
	3RD	Working of FM Transmitter & Receiver with Block Diagram.
	4TH	**TEST**
		5. ANALOG TO DIGITAL CONVERSION & PULSE MODULATION SYSTEM.
10th	1ST	Concept of Sampling Theorem , Nyquist rate & Aliasing
	2ND	Sampling Techniques (Instantaneous, Natural, Flat Top)
	3RD	Analog Pulse Modulation - Generation and detection of PAM, PWM & PPM system with the help of Block diagram & comparison of all above.
	4TH	Concept of Quantization of signal & Quantization error.
11th	1ST	Generation & Demodulation of PCM system with Block diagram & its applications.
	2ND	ASSIGNMENT
	3RD	Companding in PCM & Vocoder
	4TH	Time Division Multiplexing & explain the operation with circuit diagram.
12TH	1ST	Generation & demodulation of Delta modulation with Block diagram.
	2ND	Generation & demodulation of DPCM with Block diagram.
	3RD	Comparison between PCM, DM , ADM & DPCM
	4TH	TEST
		6. **DIGITAL MODULATION TECHNIQUES.**

13th	1ST	Concept of Multiplexing (FDM & TDM)- (Basic concept , Transmitter & Receiver) & Digital modulation formats
	2ND	Advantages of digital communication system over Analog system
	3RD	Digital modulation techniques & types.
	4TH	Generation and Detection of binary ASK, FSK, PSK, QPSK, QAM, MSK, GMSK.
14th	1ST	Working of T1-Carrier system.
	2ND	ASSIGNMENT
	3RD	Spread Spectrum & its applications
	4TH	Working operation of Spread Spectrum Modulation Techniques (DS-SS & FH-SS)
15th	1st	Define bit, Baud, symbol & channel capacity formula.(Shannon Theorems)
	2nd	Application of Different Modulation Schemes.
	3rd	Types of Modem & its Application
	4th	TEST

G.B.Bhakti
10.9.25
Signature of Lecturer

Signature of HOD 10.09.25