GIETPOLYTECHNIC,JAGATPUR,CUTTACK

LESSONPLAN

Discipline: ETC Engineering.	Semestr=4TH	Name of the Teaching Faculty:- Pradeepta prajnaranjan swain
Subject:- Analog Digital communication [TH-2]	No of Days/ per Week Class Allotted: 03	Semester-4TH From:22.12.2025 To:18.04.2026 No of Weeks:-15
Week	**Class/Day**	**Theory Topics**
1st	1st	**Elements of Communication Systems** 1.1 Communication Process 1.2 Concept of Elements of Communication System & its Block diagram
	2nd	1.3 Source of information & Communication Channels 1.4 Classification of Communication systems
	3rd	1.5 Modulation Process 1.6 Need of modulation and classify modulation process
2nd	1st	1.7 Analog and Digital Signals & its conversion.
	2nd	1.8 Basic concept of Signals & Signals classification (Analog and Digital)
	3rd	1.9 Bandwidth limitation
3rd	1st	**Amplitude (linear) Modulation System** 2.1 Amplitude modulation
	2nd	2.2 Derive the expression for amplitude modulation signal, power relation in AM wave
	3rd	2.3 Modulation Index.
4th	1st	2.4 Generation of Amplitude Modulation (AM)- Linear level AM modulation only
	2nd	2.5 Demodulation of AM waves- Envelope detector
	3rd	2.6 Concept of SSB signal and DSBSC signal
5th	1st	2.7 Concept of Balanced model
	2nd	2.8 Vestigial Side Band Modulation
	3rd	**Angle Modulation Systems** 3.1 Concept of Angle modulation & its types (PM & FM)
6th	1st	3.2 Basic principle of Frequency Modulation
	2nd	3.3 Frequency Spectrum of FM Signal. 3.3 Expression for Frequency Modulated Signal & Modulation Index and sideband of FM signal
	3rd	3.4 Explain Phase modulation & difference of FM & PM)- working principle with Block Diagram

7th	1st	3.5 Compare between AM and FM modulation (Advantages & Disadvantages)
	2nd	3.6 Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram
	3rd	3.7 Methods of FM Demodulator or detector (Forster-Seely)
8th	1st	**AM & FM TRANSMITTER & RECEIVER** 4.1 Classification of Radio Receivers
	2nd	4.2 Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure
	3rd	4.3 AM transmitter - working principle with Block Diagram
9th	1st	4.4 Concept of Frequency conversion, RF amplifier & IF amplifier, Tuning, S/N ratio
	2nd	4.5 Working of super heterodyne radio receiver with Block diagram
	3rd	4.6 Working of FM Transmitter & Receiver with Block Diagram.
10th	1st	**ANALOG TO DIGITAL CONVERSION & PULSE MODULATION SYSTEM** 5.1 Concept of Sampling Theorem, Nyquist rate & Aliasing 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. 5.4 Concept of Quantization of signal & Quantization error.
	3rd	5.5 Generation & Demodulation of PCM system with Block diagram & its applications. 5.6 Companding in PCM & Vocoder
11th	1st	5.8 Generation & demodulation of Delta modulation with Block diagram. 5.9 Generation & demodulation of DPCM with Block diagram
	2nd	5.10 Comparison between PCM, DM , ADM & DPCM
	3rd	5.7 Time Division Multiplexing & explain the operation with circuit diagram
12th	1st	**DIGITALMODULATION TECHNIQUES** 6.1 Concept of Multiplexing (FDM & TDM)- (Basic concept, Transmitter & Receiver) & Digital modulation formats
	2nd	6.2 Advantages of digital communication system over Analog system
	3rd	6.3 Digital modulation techniques & type
13th	1st	6.4 Generation and Detection of binary ASK, FSK, PSK
	2nd	6.5 Concept of QPSK, QAM, MSK, GMSK
	3rd	6.6 Working of T1-Carrier system 6.7 Spread Spectrum & its applications
14th	1st	6.8 Concept of Spread Spectrum Modulation Techniques
	2nd	6.9 Define bit, Baud, symbol & channel capacity formula (Shannon Theorems) 6.10 Types of Modem & its Application
	3rd	Doubt clearing class
15th	1st	Doubt clearing class
	2nd	Doubt clearing class
	3rd	Doubt clearing class

Pradeepta Brajnaranjan Swain
Sign. of faculty 23.12.25

Sign. of sr. lecturer 23/12/25

Head of Dept. (HOD)
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Sign. of principal 23.12.25