BIT POLYTECHNIC,BALASORE

LESSON PLAN

Discipline: Electronics & Telecommunication Engg.	**Semester: 5th ,**	**Name of the Faculty:** Madhusmita Nayak Lecturer
Subject: Analog & Digital Communication, Theory-3	**No. of Days/week:** 05	

Week	Class Day	Theory Topics
1st	1st	Introduction to Communication Process.
	2nd	Concept of Elements of Communication System.
	3rd	Block diagram of Communication System.
	4th	Source of information & Communication Channels.
	5th	Classification of Communication systems (Line & Wireless or Radio)
2nd	1st	Modulation Process and Classify modulation process
	2nd	Need of modulation
	3rd	Analog and Digital Signals & its conversion.
	4th	Basic concept of Signals & Signals classification (Analog and Digital), Bandwidth limitation.
	5th	**Revision and Doubt clearing.**
3rd	1st	Amplitude modulation & derive the expression for amplitude modulation signal
	2nd	Power relation in AM wave & find Modulation Index
	3dr	Generation of Amplitude Modulation (AM)- Linear level AM modulation only.
	4th	Demodulation of AM waves -liner diode detector
	5th	Square law detector & .PLL.

4th	1st	Explain SSB signal and DSBSC signal.
	2nd	Methods of generating & detection SSB-SC signal (Indirect method only).
	3dr	Methods of generation DSB-SC signal (Ring Modulator).
	4th	Detection of DSB-SC signal (Synchronous detection).
	5th	Concept of Balanced modulators
5th	1st	Vestigial Side Band Modulation
	2nd	**Doubt clearing and Class test.**
	3rd	Concept of Angle modulation & its types (PM & FM)
	4th	Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.
	5th	Expression for Frequency Modulated Signal.
6th	1st	Modulation Index and sideband of FM signal.
	2nd	Explain Phase modulation & difference of FM & PM.
	3rd	Working principle of PM with Block Diagram.
	4th	Compare between AM and FM modulation (Advantages & Disadvantages).
	5th	Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram.
7th	1st	Methods of FM Demodulator or detector (Forster-Seely) working principle with Block Diagram.
	2nd	Methods of FM Demodulator or detector (Ratio detector) working principle with Block Diagram.
	3rd	**Revision and Doubt clearing.**
	4th	Classification of Radio Receivers
	5th	Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure.
8th	1st	AM transmitter - working principle with Block Diagram.
	2nd	Concept of Frequency conversion, RF amplifier.
	3rd	IF amplifier, Tuning, S/N ratio.
	4th	Working of super heterodyne radio receiver with Block diagram.
	5th	Working of FM Transmitter & Receiver with Block Diagram.
9th	1st	**Doubt clearing and Class test.**
	2nd	Concept of Sampling Theorem , Nyquist rate & Aliasing
	3rd	Sampling Techniques (Instantaneous, Natural, Flat Top).
	4th	Analog Pulse Modulation.

	5th	Generation and detection of PAM system with the help of Block diagram.
10th	1st	Generation and detection of PWM system with the help of Block diagram.
	2nd	Generation and detection of PPM system with the help of Block diagram.
	3rd	Comparison of all above.
	4th	Concept of Quantization of signal.
	5th	Quantization error.
11th	1st	Generation & Demodulation of PCM system with Block diagram.
	2nd	Applications of PCM system.
	3rd	Companding in PCM & Vocoder.
	4th	Time Division Multiplexing & explain the operation with circuit diagram.
	5th	Generation of Delta modulation with Block diagram.
12th	1st	Demodulation of Delta modulation with Block diagram.
	2nd	Generation of DPCM with Block diagram.
	3rd	Demodulation of DPCM with Block diagram.
	4th	Comparison between PCM, DM , ADM & DPCM
	5th	**Revision and Doubt clearing.**
13th	1st	Concept of Multiplexing (FDM & TDM)-(Basic concept, Transmitter & Receiver).
	2nd	Digital modulation formats.
	3rd	Advantages of digital communication system over Analog system.
	4th	Digital modulation techniques & types.
	5th	Generation and Detection of binary ASK, FSK.
14th	1st	Generation and Detection of binary PSK, QPSK.
	2nd	Generation and Detection of binary QAM.
	3rd	Generation and Detection of binary MSK, GMSK.
	4th	Working of T1-Carrier system.
	5th	Spread Spectrum & its applications.
15th	1st	Working operation of Spread Spectrum Modulation Techniques (DS-SS & FH-SS).
	2nd	Define bit, Baud, symbol & channel capacity formula (Shannon

		Theorems).
	3rd	Application of Different Modulation Schemes.
	4th	Types of Modem & its Application.
	5th	**Doubt clearing and Class test.**

Signature of Concerned Faculty