BHUBANANANDA ORISSA SCHOOL OF ENGINEERING

LESSON PLAN

BY : PRADEEP KUMAR DHAL SAMANT (Lecturer)

SUBJECT: ANALOG & DIGITAL COMMUNICATION

SEMESTER: 5TH

BRANCH: E&TC

Bhubanananda Orissa School of Engineering

Lesson Plan

Discipline: E&TC ENGG	**Semester: 5th**	**Name of the Teaching Faculty:** PRADEEP KUMAR DHAL SAMANT, LECTURER IN ETC
Subject: Analog & Digital Communication	No of Days/ per week class allotted: 05 (Mon, Tues, Wed, Thu, Sat)	Semester from 01.07 2024 to 08.11.2024 No. of weeks:18
Week No.	**Class Day**	**Theory Topics**
1st	01-07-2024	**Unit 1: Elements of Communication Systems**
		1.1 Communication Process- Concept of Elements of Communication System & its Block diagram
	02-07-2024	1.2 Source of information
	03-07-2024	Communication Channels
	04-07-2024	1.3 Classification of Communication systems (Line & Wireless or Radio)
	06-07-2024	1.4 Modulation Process
2nd	08-07-2024	Need of modulation
	09-07-2024	Classify modulation process
	10-07-2024	1.5 Analog and Digital Signals & its conversion.
	11-07-2024	
	13-07-2024	1.6 Basic concept of Signals & Signals classification (Analog and Digital)
3rd	15-07-2024	1.7 Bandwidth Limitation
	16-07-2024	**Unit 2: Amplitude (Linear) Modulation System** 2.1 Amplitude modulation
	18-07-2024	Derive the expression for amplitude modulation signal
	20-07-2024	Power relation in AM wave & find Modulation Index.
4th	22-07-2024	Numerical Problems on AM.
	23-07-2024	Numerical Problems on AM.
	24-07-2024	2.2 Generation of Amplitude Modulation (AM)- Linear level AM modulation only
	25-07-2024	2.3 Demodulation of AM waves (Liner diode detector)
	27-07-2024	Demodulation of AM waves (Square law detector)

Bhubanananda Orissa School of Engineering
Lesson Plan

5th	29-07-2024	Demodulation of AM waves (PLL)
	30-07-2024	2.4 Explain SSB signal and DSB-SC signal
	31-07-2024	2.5 Methods of generating SSB-SC signal (Indirect method only)
	01-08-2024	Methods of detection SSB-SC signal (Indirect method only)
	03-08-2024	2.6 Methods of generation DSB-SC signal (Ring Modulator)
6th	05-08-2024	Methods of detection of DSB-SC signal(Synchronous detection)
	06-08-2024	2.7 Concept of Balanced modulators
	07-08-2024	2.8 Vestigial Side Band Modulation
	08-08-2024	**1st Class Test**
	10-08-2024	**Unit 3: Angle Modulation Systems**
7th	12-08-2024	3.1 Concept of Angle modulation & its types (PM & FM)
	13-08-2024	3.2 Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.
	14-08-2024	3.3 Expression for Frequency Modulated Signal & Modulation Index and sideband of FM signal
	17-08-2024	Numerical Problems on FM
8th	20-08-2024	3.4 Explain Phase modulation & difference of FM & PM
	21-08-2024	Working principle of PM with Block Diagram
	22-08-2024	3.5 Compare between AM and FM modulation (Advantages & Disadvantages)
	24-08-2024	3.6 Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram
9th	27-08-2024	3.7 Methods of FM Demodulator or detector (Forster-Seely)-working principle with Block diagram
	28-08-2024	Methods of FM Demodulator or detector (Ratio detector)-working principle with Block diagram
	29-08-2024	**Unit 4: AM & FM Transmitter & Receiver**
	31-08-2024	4.1 Classification of Radio Receivers
10th	02-09-2024	4.2 Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure
	03-09-2024	4.3 AM transmitter - working principle with Block Diagram
	04-09-2024	4.4 Concept of Frequency conversion, RF amplifier & IF amplifier, Tuning, S/N ratio

Bhubananda Orissa School of Engineering

Lesson Plan

	05-09-2024	4.5 Working of super heterodyne radio receiver with Block diagram
11th	09-09-2024	4.6 Working of FM Transmitter & Receiver with Block Diagram
	10-09-2024	**1st Internal Exam**
	11-09-2024	**Unit 5: Analog to Digital Conversion & Pulse Modulation System**
	12-09-2024	5.1 Concept of Sampling Theorem, Nyquist rate & Aliasing
	14-09-2024	5.2 Sampling Techniques (Instantaneous, Natural, Flat Top)
12th	17-09-2024	5.3 Analog Pulse Modulation - Generation and detection of PAM system with the help of Block diagram
	18-09-2024	Analog Pulse Modulation - Generation and detection of PWM system with the help of Block diagram
	19-09-2024	5.3 Analog Pulse Modulation - Generation and detection of PPM system with the help of Block diagram
	21-09-2024	5.3 Comparison of PAM, PWM & PPM system
13th	23-09-2024	5.4 Concept of Quantization of signal & Quantization error
	24-09-2024	5.5 Generation & Demodulation of PCM system with Block diagram & its applications
	25-09-2024	5.6 Companding in PCM & Decoder
	26-09-2024	5.7 Time Division Multiplexing & explain the operation with circuit diagram
	28-09-2024	5.8 Generation & demodulation of Delta modulation with Block diagram
14th	30-09-2024	5.9 Generation & demodulation of DPCM with Block diagram
	01-10-2024	5.10 Comparison between PCM, DM , ADM & DPCM
	03-10-2024	**2nd Class Test**
	05-10-2024	**Unit 6: Digital Modulation Techniques**
15th	14-10-2024	6.1 Concept of Multiplexing (FDM & TDM)- (Basic concept, Transmitter & Receiver) & Digital modulation formats
	15-10-2024	6.2 Advantages of digital communication system over Analog system
	17-10-2024	6.3 Digital modulation techniques & types
	19-10-2024	6.4 Generation and Detection of binary ASK, FSK, PSK
16th	21-10-2024	Generation and Detection of QPSK, QAM, MSK, GMSK
	22-10-2024	6.5 Working of T1-Carrier system

Bhubananda Orissa School of Engineering
Lesson Plan

	23-10-2024	6.6 Spread Spectrum & its applications
	24-10-2024	6.7 Working operation of Spread Spectrum Modulation Techniques (DS-SS & FH-SS)
	26-10-2024	6.8 Define bit, Baud, symbol & channel capacity formula (Shannon Theorems)
17th	28-10-2024	6.9 Application of Different Modulation Schemes
	29-10-2024	6.10 Types of Modem & its Application
	30-10-2024	**2nd Internal Exam**
	02-11-2024	**REVISION & IMPORTANT QUESTIONS DISCUSSION**
18th	04-11-2024	
	05-11-2024	
	06-11-2024	
	07-11-2024	

28/06/2024

Signature of Faculty

HOD (E&TC)
Sr. Lecturer
Electronics & Telecomm. Engg
BOSE, Cuttack

Principal