

PATHANI SAMANTA INSTITUTE OF ENGG. & TECHNOLOGY

KARANDA, DKL

LESSONPLAN
Session(2023-2024)

Discipline: Electronics & Telecommunication Engg.	Semester: 5 th , Winter/2023	Name of the Faculty: Sagarika Pal
Subject: Analog & Digital Communication, Theory-3	No. of Days/week: 05	Start Date: 01/08/2023 End Date: 30/11/2023

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 & Signal 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
	3rd	Generation of Amplitude Modulation (AM) - Linear level AM modulation only.
	4th	Demodulation of AM waves - linear diode detector

	5th	Squarelawdetector&.PLL.
4th	1st	ExplainSSBsignaland DSBSCsignal.
	2nd	Methodsofgenerating&detectionSSB-SCsignal(Indirectmethod only).
	3dr	MethodsofgenerationDSB-SCsignal(RingModulator).
	4th	DetectionofDSB-SCsignal(Synchronouselection).
	5th	ConceptofBalanced modulators
5th	1st	VestigialSideBandModulation
	2nd	DoubtclearingandClasstest.
	3rd	ConceptofAnglemodulation&itstypes(PM&FM)
	4th	BasicprincipleofFrequencyModulation&FrequencySpectrumofFM Signal.
	5th	ExpressionforFrequencyModulatedSignal.
6th	1st	ModulationIndexandsidebandofFMsignal.
	2nd	ExplainPhasemodulation&differenceofFM&PM.
	3rd	WorkingprincipleofPMwithBlockDiagram.
	4th	ComparebetweenAMandFMmodulation(Advantages&Dis advantages).
	5th	MethodsofFMGeneration(Indirect(Armstrong)methodonly)working principle with Block Diagram.
7th	1st	MethodsofFMDemodulatorordetector(Forster-Seely)working principle with Block Diagram.
	2nd	MethodsofFMDemodulatorordetector(Ratiidetector)working principle with Block Diagram.
	3rd	RevisionandDoubtclearing.
	4th	ClassificationofRadioReceivers
	5th	DefinethetermsSelectivity,Sensitivity,FidelityandNoiseFigure.
8th	1st	AMtransmitter-workingprinciple withBlockDiagram.
	2nd	ConceptofFrequencyconversion,RF amplifier.
	3rd	IFamplifier,Tuning,S/Nratio.
	4th	WorkingofsuperheterodyneradioreceiverwithBlockdiagram.
	5th	WorkingofFMTransmitter&ReceiverwithBlockDiagram.
9th	1st	DoubtclearingandClasstest.
	2nd	ConceptofSamplingTheorem,Nyquistate&Aliasing
	3rd	SamplingTechniques(Instantaneous,Natural,FlatTop).

	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 communications 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 the faculty

Signature of the Principal