

KIIT POLYTECHNIC
Department of Electronics & Telecommunication Engineering

LESSON PLAN

Session :: Winter – 2022
Course Type :: Theory
Semester/Branch :: 5th Semester, Electronics & Telecommunication Engineering
Subject (with code) :: Analog and Digital Communication (Th-3)
Contact hours/week :: 05 hours
Name of Faculty :: Mr A K Gochhayat

SL. No.	CLASS ID	COURSE CONTENT	MODE OF DELIVERY	EXHIBIT/ REFERENCE
1		Introduction to Communication Process. Concept of Elements of Communication System. Block diagram of Communication System.	Lecture(Explanation) Video Content	Study material Nptel Reference
2		Source of information & Communication Channels. Classification of Communication systems (Line & Wireless or Radio).	Lecture(Explanation)	Study material
3		Modulation Process and Classify modulation process. Need of modulation	Lecture(Explanation)	Study material
4		Analog and Digital Signals & its conversion. Basic concept of Signals & Signals classification (Analog and Digital), Bandwidth limitation.	Student Presentation	Study material
5		Revision and Doubt clearing.		
6		Amplitude modulation & derive the expression for amplitude modulation signal. Power relation in AM wave & find Modulation Index. Generation of Amplitude Modulation (AM)- Linear level AM modulation only. Demodulation of AM waves -liner diode detector	Lecture(Explanation) Video Content	Study material Nptel Reference
7		Square law detector & .PLL.	Lecture(Explanation)	Study material
8		Explain SSB signal and DSBSC signal. Methods of generating & detection SSB-SC signal (Indirect method only).	Lecture(Explanation)	Study material
9		Methods of generation DSB-SC signal (Ring Modulator). Detection of DSB-SC signal (Synchronous detection).	Lecture(Explanation)	Study material
10		Concept of Balanced modulators. Vestigial Side Band Modulation	Lecture(Explanation)	Study material
11		Doubt clearing and Class test.		
12		Concept of Angle modulation & its types (PM & FM). Basic principle of	Student Presentation	Study material

		Frequency Modulation & Frequency Spectrum of FM Signal.		
13		Expression for Frequency Modulated Signal.	Lecture(Explanation)	Study material
14		Modulation Index and sideband of FM signal.	Lecture(Elaboration)	Study material
15		Explain Phase modulation & difference of FM & PM.	Lecture(Explanation)	Study material
16		Working principle of PM with Block Diagram. Compare between AM and FM modulation (Advantages & Disadvantages).	Lecture(Explanation)	Study material
17		Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram.	Lecture(Explanation)	Study material
18		Methods of FM Demodulator or detector (Forster-Seely) working principle with Block Diagram.	Lecture(Explanation)	Study material
19		Methods of FM Demodulator or detector (Ratio detector) working principle with Block Diagram.	Lecture(Explanation)	Study material
20		Revision and Doubt clearing.		
21		Classification of Radio Receivers. Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure. AM transmitter - working principle with Block Diagram.	Guest Lecture	Study material
22		Concept of Frequency conversion, RF amplifier.	Lecture(Explanation)	Study material
23		IF amplifier, Tuning, S/N ratio.	Lecture(Explanation)	Study material
24		Working of super heterodyne radio receiver with Block diagram.	Lecture(Explanation)	Study material
25		Working of FM Transmitter & Receiver with Block Diagram.	Lecture(Explanation)	Study material
26		Doubt clearing and Class test.		
27		Concept of Sampling Theorem , Nyquist rate & Aliasing	Video Content	Personal Video Link
28		Sampling Techniques (Instantaneous, Natural, Flat Top).	Video Content	Personal Video Link
29		Analog Pulse Modulation.	Video Content	Personal Video Link
30		Generation and detection of PAM system with the help of Block diagram.	Video Content	Personal Video Link
31		Generation and detection of PWM system with the help of Block diagram.	Video Content	Personal Video Link
32		Generation and detection of PPM system with the help of Block diagram.	Video Content	Personal Video Link
33		Comparison of all above.	Lecture(Explanation)	Study material
34		Concept of Quantization of signal.	Lecture(Elaboration)	Study material
35		Quantization error.	Lecture(Explanation)	Study material
36		Generation & Demodulation of PCM	Lecture(Explanation)	Study material

		system with Block diagram.		
37		Applications of PCM system.	Lecture(Explanation)	Study material
38		Companding in PCM & Vocoder.	Lecture(Explanation)	Study material
39		Time Division Multiplexing & explain the operation with circuit diagram.	Lecture(Explanation)	Study material
40		Generation of Delta modulation with Block diagram.	Lecture(Explanation)	Study material
41		Demodulation of Delta modulation with Block diagram.	Lecture(Explanation)	Study material
42		Generation of DPCM with Block diagram.	Lecture(Explanation)	Study material
43		Demodulation of DPCM with Block diagram.	Lecture(Explanation)	Study material
44		Comparison between PCM, DM , ADM & DPCM	Lecture(Explanation)	Study material
45		Revision and Doubt clearing.		
46		Concept of Multiplexing (FDM & TDM)-(Basic concept, Transmitter & Receiver).	Lecture(Explanation)	Study material
47		Digital modulation formats.	Lecture(Explanation)	Study material
48		Advantages of digital communication system over Analog system.	Lecture(Elaboration)	Study material
49		Digital modulation techniques & types.	Lecture(Explanation)	Study material
50		Generation and Detection of binary ASK, FSK.	Lecture(Explanation)	Study material
51		Generation and Detection of binary PSK, QPSK.	Lecture(Explanation)	Study material
52		Generation and Detection of binary QAM.	Lecture(Explanation)	Study material
53		Generation and Detection of binary MSK, GMSK.	Lecture(Explanation)	Study material
54		Working of T1-Carrier system.	Lecture(Explanation)	Study material
55		Spread Spectrum & its applications.	Faculty Panel Discussion	Study material
56		Working operation of Spread Spectrum Modulation Techniques (DS-SS & FH-SS).	Faculty Panel Discussion	Study material
57		Define bit, Baud, symbol & channel capacity formula (Shannon Theorems).	Faculty Panel Discussion	Study material
58		Application of Different Modulation Schemes.	Faculty Panel Discussion	Study material
59		Types of Modem & its Application.	Faculty Panel Discussion	Study material
60		Doubt clearing and Class test.		

Signature of Concern Teacher