LESSON PLAN		
Discipline: ETC	**Semester:5th**	
Subject:ANALOG & DIGITAL COMMUNICATION	**No of Days /per week class allotted: 5**	**Theory**
Week	**Class Day**	**Topics**
1st	1st	**Unit-1: Elements of Communication Systems.(10)** 1.1 Communication Process- Concept of Elements of Communication System & its Block diagram
	2nd	1.2 Source of information & Communication Channels.
	3rd	1.3 Classification of Communication systems (Line & Wireless or Radio)
	4th	1.4 Modulation Process, Need of modulation and
	5th	classify modulation process
2nd	1st	1.5 Analog and Digital Signals & its conversion.
	2nd	Continue
	3rd	1.6 Basic concept of Signals &
	4th	Signals classification (Analog and Digital)
	5th	1.7 Bandwidth limitation
3rd	1st	**Unit-2: Amplitude (linear) Modulation System (15)** 2.1 Amplitude modulation & derive the expression for amplitude modulation signal,
	2nd	power relation in AM wave & find Modulation Index.
	3rd	2.2 Generation of Amplitude Modulation(AM)- Linear level AM modulation only
	4th	2.3 Demodulation of AM waves (liner diode detector, square law detector & PLL)
	5th	Continue
4th	1st	2.4 Explain SSB signal and
	2nd	DSBSC signal
	3rd	2.5 Methods of generating & detection SSB-SC signal (Indirect method only)
	4th	Continue
	5th	2.6 Methods of generation DSB-SC signal (Ring Modulator) and
5th	1st	detection of DSB-SC signal (Synchronous detection)
	2nd	2.7 Concept of Balanced modulators
	3rd	2.8 Vestigial Side Band Modulation
	4th	**Unit-3: Angle Modulation Systems(10)** 3.1 Concept of Angle modulation & its types (PM & FM)
	5th	3.2 Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.
6th	1st	3.3 Expression for Frequency Modulated Signal & Modulation Index and sideband of FM signal
	2nd	Continue
	3rd	3.4 Explain Phase modulation & difference of FM & PM)- working principle with Block Diagram
	4th	3.5 Compare between AM and FM modulation (Advantages & Disadvantages)
	5th	3.6 Methods of FM Generation (Indirect (Armstrong) method only) working principle with Block Diagram
	1st	3.7 Methods of FM Demodulator or detector (Forster-Seely & Ratio detector)- working principle with Block Diagram
	2nd	Continue

7th	3rd	**Unit-4: AM & FM TRANSMITTER & RECEIVER(08)** 4.1 Classification of Radio Receivers
	4th	4.2 Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure
	5th	4.3 AM transmitter - working principle with Block Diagram
8th	1st	Continue
	2nd	Continue
	3rd	4.5 Working of super heterodyne radio receiver with Block diagram
	4th	4.6 Working of FM Transmitter & Receiver with Block Diagram.
	5th	**Unit-5: ANALOG TO DIGITAL CONVERSION & PULSE MODULATION SYSTEM.(17)** 5.1 Concept of Sampling Theorem , Nyquist rate & Aliasing
9th	1st	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.
	3rd	Continue
	4th	Continue
	5th	5.4 Concept of Quantization of signal & Quantization error.
10th	1st	5.5 Generation & Demodulation of PCM system with Block diagram & its applications.
	2nd	Continue
	3rd	5.6 Companding in PCM & Vocoder
	4th	5.7 Time Division Multiplexing & explain the operation with circuit diagram.
	5th	5.8 Generation & demodulation of Delta modulation with Block diagram.
11th	1st	Continue
	2nd	5.9 Generation & demodulation of DPCM with Block diagram.
	3rd	Continue
	4th	5.10 Comparison between PCM, DM , ADM & DPCM
	5th	Continue
12th	1st	**Unit-6: DIGITALMODULATION TECHNIQUES(15)** 6.1 Concept of Multiplexing (FDM & TDM)- (Basic concept , Transmitter & Receiver) & Digital modulation formats.
	2nd	Continue
	3rd	6.2 Advantages of digital communication system over Analog system
	4th	6.3 Digital modulation techniques & types.
	5th	6.4 Generation and Detection of binary ASK, FSK, PSK, QPSK, QAM, MSK, GMSK.
13th	1st	Continue
	2nd	Continue
	3rd	6.5 Working of T1-Carrier system.
	4th	6.6 Spread Spectrum & its applications
	5th	6.7 Working operation of Spread Spectrum Modulation Techniques (DS-SS & FH-SS).
14th	1st	Continue
	2nd	6.8 Define bit, Baud, symbol & channel capacity formula.(Shannon Theorems)
	3rd	Continue
	4th	6.9 Application of Different Modulation Schemes.
	5th	6.10 Types of Modem & its Application