ACADEMIC LESSON PLAN FOR WINTER -2023

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Th.3 - ANALOG & DIGITAL COMMUNICATION

PERIOD	TOPIC COVERED	DATE	REMARKS
UNIT-01 ELEMENTS OF COMMUNICATION SYSTEMS 3periods	Communication Process- Concept of Elements of Communication System & its Block diagram		
2periods	Source of information & Communication Channels.		
2periods	Classification of Communication systems (Line & Wireless or Radio)		
2periods	Modulation Process, Need of modulation and classify modulation process		
2periods	Analog and Digital Signals & its conversion.		
3periods TOTAL PERIOD-12	Basic concept of Signals & Signals classification (Analog and Digital) Bandwidth limitation		
UNIT-02 Amplitude (linear) Modulation System 3periods	Amplitude modulation & derive the expression for amplitude modulation signal, power relation in Explain SSB signal and DSBSC signal		

3periods	AMwave & find Modulation Index. Generation of Amplitude Modulation(AM)- Linear level AM modulation only Demodulation of AM waves (liner diode detector, square law detector & PLL)		
3periods	Methods of generating & detection SSB-SC signal (Indirect method only)		
3periods	Methods of generation DSB-SC signal (Ring Modulator) and detection of DSB-SC signal (Synchronous detection)		
3periods TOTAL PEROD -15	Concept of Balanced modulators Vestigial Side Band Modulation		
UNIT-3 2periods	Concept of Angle modulation & its types (PM & FM)		
2periods	Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.		
2periods	Expression for Frequency Modulated Signal & Modulation Index and sideband of FM signal		
2periods	Explain Phase modulation & difference of FM & PM)- working principle with Block Diagram Compare between AM and FM modulation (Advantages & Disadvantages) Methods of FM Generation (		
2periods **TOTALPERIOD-10**	Indirect (Armstrong) method only) working principle with Block Diagram Methods of FM Demodulator or detector (Forster-Seely & Ratio detector)- working principle with BlockDiagram		

Unit-4 **AM & FM TRANSMITTER & RECEIVER** **2PERIOD**	Classification of Radio Receivers Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure		
2PERIOD	AM transmitter - working principle with Block Diagram Concept of Frequency conversion, RF amplifier & IF amplifier ,Tuning, S/N ratio		
2PERIOD	Working of super heterodyne radio receiver with Block diagram		
2PERIOD	Working of FM Transmitter & Receiver with Block Diagram		
Unit-5 ANALOG TO DIGITAL CONVERSION & PULSE MODULATION SYSTEM 3PERIOD	Concept of Sampling Theorem , Nyquist rate & Aliasing Sampling Techniques (Instantaneous, Natural, Flat Top)		
3PERIOD	Analog Pulse Modulation - Generation and detection of PAM, PWM & PPM system with the help ofBlock diagram & comparison of all above. Concept of Quantization of signal & Quantization error		
3PERIOD	Generation & Demodulation of PCM system with Block diagram & its applications. Companding in PCM & Vocoder		
3PERIOD	Time Division Multiplexing & explain the operation with circuit diagram		
3PERIOD	Generation & demodulation of Delta modulation with Block diagram. Generation & demodulation of DPCM with Block diagram		

2PERIOD	Comparison between PCM, DM , ADM & DPCM		
Unit-6 DIGITALMODULATION TECHNIQUES 3PERIOD	Concept of Multiplexing (FDM & TDM)- (Basic concept , Transmitter & Receiver) & Digital modulationformats.		
3PERIOD	Advantages of digital communication system over Analog system Digital modulation techniques & types		
3PERIOD	Generation and Detection of binary ASK, FSK, PSK, QPSK, QAM, MSK, GMSK. Working of T1-Carrier system		
3PERIOD	Spread Spectrum & its applications Working operation of Spread Spectrum Modulation Techniques (DS-SS & FH-SS)		
3PERIOD	Define bit, Baud, symbol & channel capacity formula.(Shannon Theorems) Application of Different Modulation Schemes. Types of Modem & its Application		

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