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| **LESSON PLAN** | | | |
| **Semester: 5th Branch: ETC&TC Subject:-Analog & Digital Communication** | | | |
| MONTH | NOs of  Periods as  Per Syllabus | NOs of  Periods  Actually  available | TOPICS TO BE COVERED |
|  |  |  | **Unit-1: Elements of Communication Systems.**   * 1. Communication Process-Concept of Elements of Communication System & its Block diagram   2. Source of information & Communication Channels.   3. Classification of Communication systems (Linear & Wireless or Radio)   4. Modulation Process, Need of modulation and classify modulation process   5. Analog and Digital Signals &its conversion.   6. Basic concept of Signals & Signals classification(Analog and Digital)   7. Bandwidth limitation   **Unit-2: Amplitude(linear)Modulation System**  2.1 Amplitude modulation & derive the expression for amplitude modulation signal, power relation in AM wave & find Modulation Index.   * 1. Generation of Amplitude Modulation(AM)-Linear level AM modulation only   2. Demodulation of AM waves(liner diode detector, square law detector &PLL)   3. Explain SSB signal and DSBSC signal   4. Methods of generating & detection SSB-SC signal(Indirect method only)   5. Concept of Balanced modulators   6. Vestigial Side Band Modulation  **Unit-3: Angle Modulation Systems.** 3.1 Concept of Angle modulation & its types(PM&FM)   * 1. Basic principle of Frequency Modulation & Frequency Spectrum of FM Signal.   2. Expression for Frequency Modulated Signal & Modulation Index and side band of FM signal   3. Explain Phase modulation & difference of FM&PM)-working principle with Block Diagram   4. Compare between AM and FM modulation( Advantages &Disadvantages) |

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|  |  |  | **Unit-4: AM& FM TRANSMITTER & RECEIVER**  * 1. Classification of Radio Receivers   2. Define the terms Selectivity, Sensitivity, Fidelity and Noise Figure   3. AM transmitter-working principle with Block Diagram   4. Concept of Frequency conversion, RF amplifier & IF amplifier, Tuning, S/N ratio   5. Working of superheterodyne radio receiver with Block diagram   Working of FM Transmitter & Receiver with Block Diagram **Unit-5: ANALOG TO DIGITAL CONVERSION & PULSE MODULATION SYSTEM.**  * 1. Concept of Sampling Theorem, Nyquist rate& Aliasing   2. Sampling Techniques( Instantaneous, Natural, Flat Top)   Analog Pulse Modulation-Generation and detection of PAM, PWM & PPM system with the help of Block diagram & comparison of all above   * 1. Concept of Quantization of signal & Quantization error.  5.6 Companding in PCM & Vocoder  * 1. Time Division Multiplexing & explain the operation with circuit diagram.   2. Generation & demodulation of Delta modulation with Block diagram.   3. Generation & demodulation of DPCM with Block diagram.   4. Comparison between PCM,DM,ADM & DPCM  **Unit-6: DIGITAL MODULATION TECHNIQUES.** 6.1 Concept of Multiplexing (FDM&TDM)-   * 1. Advantages of digital communication system over Analog system   2. Digital modulation techniques &types.   3. Generation and Detection of binary ASK,FSK, PSK,QPSK,QAM,MSK,GMSK.   4. Working of T1-Carriersystem.Spread Spectrum & its applications   5. Working operation of Spread Spectrum ModulationTechniques(DS-SS&FH-SS).   6. Define bit, Baud, symbol &channel capacity formula.(Shannon Theorems)   7. Application of Different Modulation Schemes.  Types of Modem & its Application |
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