

Vidyalankar

S.E. Sem. IV [ETRX]

Basic of Analog and Digital Communication System

SYLLABUS

Time : 3 Hrs.

Theory : 100 Marks

Term Work : 25 Marks

Oral : 25 Marks

1. Elements of Communication System :

Basic block diagram of communication system, Modulation and Demodulation concept, channels Noise in communication system, Signal-to-Noise ratio, noise factor and Noise Figure, equivalent Noise Temperature Electromagnetic Waves propagation : Propagation terms and Definitions.

2. Amplitude Modulation ;

Principles of DSB full carrier AM, envelope detector, practical diode detector. Different types of AM : DSB-SC, SSB-SC, VSB, ISB.

3. Angle modulation

Principles of Frequency Modulation and phase Modulation. FM Modulators, types of FM : NBFM and WBFM, FM Transmitter, noise triangle, pre-emphasis and de-emphasis circuits. FM Detection : frequency discriminator and phase discriminator.

4. Radio Receivers

Receiver Characteristics, TRF Receivers, and Super heterodyne Receivers : choice of IF, AGC, AFC In AM and FM receivers.

5. Analog Pulse Modulation

Sampling Theorem for Low pass signals, Aliasing error, Sampling techniques, Principles, generation, Demodulation and spectrum of PAM, PWM, PPM .

6. Digital Pulse Modulation

Comparison of digital signal transmission over analog signal transmission, significance of regenerative repeaters.

Pulse –coded modulation (PCM) : sampling, quantizing, encoding technique, PCM bandwidth, Necessity of companding, PCM waveform formats : Uni-polar and polar NRZ, RZ, AMI Delta modulation (DM), Adaptive Delta modulation (ADM).

Multiplexing : TDM, FDM – Principles and applications.

References :

1. “Electronics communication system” (WayneTomasi) Pearson education, Third edition 2001.
2. “Electronics communication system” (Kennedy and Davis) Tata Mcgraw Hill
3. “Communication systems Analog and Digital”, (R.P. Sing and S.D. Sapre) Tata Mcgraw Hill
4. “Principles of communication sytems”, (Taub and Schilling) Tata Mcgraw Hill
5. “Electronics communication system”, (Roy Black), Cengage learning, second edition.
6. “Modern Digital and analog Communication system” Third Edition (B.P. Lathi) OXFORD
7. “Electronics communications modulation and transmission”, (Robert J. Schoenbeck)
8. “Digital and Analog communication system”, (Lean W couch) Pearson education, Sixth edition.

