

S.E. (ELECTRONICS) SEMESTER IV

BASIC OF ANALOG AND DIGITAL COMMUNICATION SYSTEM

Period per week	Lecture	4	
	Practical	2	
	Tutorial	---	
		Hours	Marks
Evaluation System	Theory Examination	3	100
	Practical	---	---
	Oral Examination	----	25
	Term Work	---	25
	Total	---	150

Detailed Syllabus		Lectures/Week
1.	<p>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.</p>	06
2.	<p>Amplitude Modulation : Principles of DSB Full Carrier AM, envelope detector, practical diode detector. Different types of AM : DSB-SC ,SSB-SC , VSB, ISB</p>	12
3.	<p>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</p>	12
4	<p>Radio Receivers Receiver Characteristics , TRF Receivers, and Super heterodyne Receivers : choice of IF , AGC , AFC In AM and FM receivers.</p>	07
5.	<p>Analog Pulse Modulation Sampling Theorem for Low pass signals , Aliasing error , Sampling techniques, Principles, generation, Demodulation & Spectrum Of PAM, PWM, PPM</p>	07

6.	<p>Digital Pulse Modulation</p> <p>Comparison of digital signal transmission over analog signal transmission, significance of regenerative repeaters .</p> <p>Pulse- coded modulation (PCM) : sampling ,quantizing , encoding technique, PCM bandwidth,</p> <p>Necessity of companding, PCM Waveform formats: Uni-polar and polar NRZ , RZ , AMI</p> <p>Delta modulation (DM) , Adaptive Delta Modulation(ADM).</p> <p>Multiplexing: TDM, FDM- Principles & applications.</p>	12
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Text Books:

1. Wayne Tomasi “Electronics communication system” Pearson education, Third edition 2001.
2. Kennedy and Davis “Electronics communication system”,Tata Mcgraw Hill
3. R.P. Sing and S.D. Sapre, “Communication systems Analog and Digital”, Tata Mcgraw Hill
4. Taub and schilling “principles of communication systems”, Tata Mcgraw Hill

Reference Books:

1. Roy Black, “Electronics communication system”, Cengage learning, second edition.
2. B.P. Lathi “Modern Digital and analog Communication system” Third edition, OXFORD
3. Robert J. Schoenbeck “Electronics communications modulation and transmission”.
4. Lean W couch “Digital and Analog communication system”, Pearson education, Sixth edition.

Term Work:

The term work shall consists of at least eight Laboratory experiments covering the whole of syllabus, duly recorded and graded. This will carry a weightage of fifteen marks. A test shall be conducted and will carry a weightage of ten marks.

SUGGESTED LIST OF EXPERIMENTS

1. Amplitude Modulation And Demodulation
2. DSB-SC & SSB-SC Modulation ,demodulation
3. Frequency Modulation and Demodulation
4. Study of Superhetrodyne Receiver characteristics
5. Sampling and Reconstruction of sampled signals
6. Pulse Modulation (PAM, PWM, PPM)
7. Delta Modulation
8. Time Division Multiplexing of PCM signals
9. Line codes (NRZ , RZ ,AMI-RZ)
10. Simulation on AM,FM / Multiplexing

