

**HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN**

**B.E. THIRD YEAR**

**ELECTRONICS & COMMUNICATION**

(In Force June 2006)

**SEMESTER – VI**

**EC 604: ANALOG COMMUNICATION SYSTEM**

Teaching Scheme		Examination Scheme				
Theory Hrs.	Practical Hrs.	Theory Hrs.	Theory Marks	Pract./ Viva Marks	Term Work Marks	Total Marks
3	2	3	100	25	25	150

**SYLLABUS**

- 1. INTRODUCTION:**
- 2. ANALYSIS & TRANSMISSION OF SIGNALS:** Fourier series, Fourier transform, Properties of Fourier transform, Convolution, Time domain, Parse Val's Theorem, Sampling theorem, Pulse communication systems, Condition for distortion less transmitting through linear systems, Signal distortion, Relation between bandwidth and pulse transmission, Energy Spectral density, Power spectral density, correlation of power signals, Power spectral density of noise.
- 3. TIME DOMAIN AND FREQUENCY DOMAIN:** Description of AM signal, Hilbert's transform, Effect of freq. and phase errors in Synchronous demodulation, Digital carrier system, Interference and noise in AM systems, SNR calculation, FDM, Angle modulation, PM & FM, Bandwidth calculation, Interference & noise in angle modulation systems, SNR calculation for PM & FM, Pre-emphasis and de emphasis, Threshold, Stereo FM.
- 4. Probability Theory:** Introduction to theory of Probability, Random variables, Statistical Average, Central limit theorem, and correlation.
- 5. Random Processes:** Random variables to random processes, PSD for random process, Multiple random processes, Transmission of random processes through Linear systems, Band pass random Processes, Optimum filtering, The Wiener-Hopf Filter.
- 6. Communication Systems in presence of Noise:** Analog systems - base band systems, AM systems, Angle Modulated systems, Pulse Modulated systems, Optimum Pre-emphasis de-emphasis systems.

**REFERENCE BOOKS:**

1. Modern Digital & Analog Communication systems by B.P.Lathi (CBS Publication)
2. Communication systems by Simon Hykin (Wiley Eastern).