EC8491 COMMUNICATION THEORY   **L T P C 3 0 0 3**

UNIT I AMPLITUDE MODULATION 9

Amplitude Modulation- DSBSC, DSBFC, SSB, VSB - Modulation index, Spectra, Power relations and Bandwidth – AM Generation – Square law and Switching modulator, DSBSC Generation – Balanced and Ring Modulator, SSB Generation – Filter, Phase Shift and Third Methods, VSB Generation – Filter Method, Hilbert Transform, Pre-envelope & complex envelope –comparison of different AM techniques, Super heterodyne Receiver

UNIT II ANGLE MODULATION 9

Phase and frequency modulation, Narrow Band and Wide band FM – Modulation index, Spectra, Power relations and Transmission Bandwidth - FM modulation –Direct and Indirect methods, FM Demodulation – FM to AM conversion, FM Discriminator - PLL as FM Demodulator.

UNIT III RANDOM PROCESS 9

Random variables, Random Process, Stationary Processes, Mean, Correlation & Covariance functions, Power Spectral Density, Ergodic Processes, Gaussian Process, Transmission of a Random Process Through a LTI filter.

UNIT IV NOISE CHARACTERIZATION 9

Noise sources – Noise figure, noise temperature and noise bandwidth – Noise in cascaded systems. Representation of Narrow band noise –In-phase and quadrature, Envelope and Phase – Noise performance analysis in AM & FM systems – Threshold effect, Pre-emphasis and deemphasis for FM.

UNIT V SAMPLING & QUANTIZATION 9

Low pass sampling – Aliasing- Signal Reconstruction-Quantization - Uniform & non-uniform quantization - quantization noise - Logarithmic Companding –PAM, PPM, PWM, PCM – TDM, FDM.

TEXT BOOKS:

1. J.G.Proakis, M.Salehi, ―Fundamentals of Communication Systems‖, Pearson Education 2014. (UNIT I-IV)

2. Simon Haykin, ―Communication Systems‖, 4th Edition, Wiley, 2014.

REFERENCES:

1. B.P.Lathi, ―Modern Digital and Analog Communication Systems‖, 3rd Edition, Oxford University Press, 2007.

2. D.Roody, J.Coolen, ―Electronic Communications, 4th edition PHI 2006

3. A.Papoulis, ―Probability, Random variables and Stochastic Processes‖, McGraw Hill, 3rd edition, 1991.