PET5I103 ANALOG COMMUNICATION (3-0-2)

MODULE-I

1. **SIGNALS AND SPECTRA:** An Overview of Electronic Communication Systems, Signal and its Properties, Fourier series Expansion and its Use, The Fourier Transform, Orthogonal Representation of Signal.
2. **RANDOM VARIABLES AND PROCESSES:** Probability, Random variables, Useful Probability Density functions, Useful Properties and Certain Application Issues.
3. **AMPLITUDE MODULATION SYSTEMS:** Need for Frequency translation, Amplitude Modulation (Double Side Band with Carrier DSB-C), Single Sideband Modulation (SSB) Other AM Techniques and Frequency Division Multiplexing.

MODULE-II

4. **ANGLE MODULATION:** Angle Modulation, Tone Modulated FM Signal, Arbitrary Modulated FM signal, FM Modulators and Demodulators, Approximately Compatible SSB Systems.
5. **PULSE MODULATION AND DIGITAL TRANSMISSION OF ANALOG SIGNAL:**Analog to Digital (Noisy Channel and Role of Repeater), Pulse Amplitude Modulation and Concept of Time division multiplexing, Digital Representation of Analog Signal

MODULE-III

6. **MATHEMATICAL REPRESENTATION OF NOISE:** Some Sources of Noise, Frequency-domain Representation of Noise, Superposition of Noises, Linear Filtering of Noise.
7. **NOISE IN AMPLITUDE MODULATION SYSTEM:** Framework for Amplitude Demodulation, Single Sideband Suppressed Carrier (SSB-SC), Double Sideband Suppressed Carrier (DSB-SC), Double Sideband with Carrier (DSB-C).

MODULE-IV

8. **NOISE IN FREQUENCY MODULATION SYSTEM:** An FM Receiving System, Calculation of Signal to Noise Ratio, Comparison of FM and AM, Pre emphasis and De-emphasis and SNR Improvement, Noise in Phase Modulation and Multiplexing Issues, The FM Demodulator using Feedback (FMFB).

Additional Module (Terminal Examination-Internal)

1. AMPLITUDE MODULATION SYSTEMS:Radio Transmitter and Receiver.
2. PULSE MODULATION: Pulse Width Modulation and Pulse Position Modulation.
3. SYSTEM NOISE IN FREQUENCY MODULATION:Threshold in Frequency Modulation, Calculation of Threshold in an FM Discriminator.

Text Books

1. Principles of Communication System, H. Taub, D. L Schilling, G. Saha, Tata McGraw Hill, 3rd Edition, 2008.

2. Modern Digital and Analog Communication Systems, B.P. Lathi,Zhi Ding, Oxford University Press, 4th edition 2010.

Reference Books

1. Communication System Engineering, MasoudSalehi, John G. Proakis, PHI, Pearson Education, Second Edition 2002.
2. Analog Communication, V. Chandra Sekar, Oxford University Press 2010.
3. Communication Systems S.Haykin, john Wiley& sons 4th edition 2001.
4. Communication Systems, B. P.Lathi, BS Publications, 2001.