**13EC2203-ANALOG COMMUNICATION**

 Credits: 4

Lectures/Week: 4Hrs. Sessional Marks: 40

Univ. Exam. Duration: 3Hrs Univ.Exam.Marks:60

**UNIT – I**

Elements of Electrical communication systems - Modulation and its need and types Fundamental Physical limitations - Electromagnetic Spectrum and Areas of applications

Amplitude Modulation: Full AM DSB-SC and SSB generation and detection methods VSB, Frequency translation, FDM, Nonlinear distortion and Inter modulation.

**UNIT -II**

Angle modulation ,Phase and frequency modulation ,NBFM, WBFM , Multitone FM Transmission bandwidth of FM , Direct and Indirect generation of FM ,Demodulation methods, Nonlinear effects ,FM versus AM.

**UNIT -III**

Pulse Analog Modulation: Sampling Theorem - Nyquist rate - Aliasing effect - Sampling of band pass signals -PDM and PPM Generation and detection, Spectra –Synchronization, TDM Asynchronous TDM-Comparison of TDM & FDM.

**UNIT –IV**

Effect of noise on linear modulation systems: Base band systems, DSB-SC, SSB Conventional AM. Carrier phase estimation with a Phase Locked Loop (PLL), Effect of additive noise on phase estimation. Effect of noise on Angle modulation systems — Threshold effect in angle modulation, Pre-emphasis and De-emphasis. Comparison of Angle modulation systems. Effect of transmission losses and noise in analog communication systems.

**UNIT-V**

Circuit Implementation of modulation systems: Block diagram Study of Radio Broadcast AM and FM transmitters, Super heterodyne receivers, Choice of IF, AGC, Tracking Characteristics of Radio receivers, FM stereo.

**TEXT BOOKS:**

1. “Communication Systems” Simon Haykin, Wiley Eastern.

2. “Electronic communication systems” J.Kennedy TMH

**REFERENCE BOOKS:**

1. “Communication Systems Engineering” John Proakis, Masoud Saleb.

2. “Principles of Communication Systems” Taub and Schilling”, McGraw-Hill ISE.

3. “Electronic Communications” Dennis Roddy and John Coolen, PHI.

4. “Modern Digital and Analog Communication Systems” B.PLathi, Oxford Univ. Press.