ACHARYA NAGARJUNA UNIVERSITY - UG SYLLABUS

Group: B.Sc **Subject:** ANALOG & DIGITAL COMMUNICATIONS **Year**: III **Sem**: V

Unit-I:

AMPLITUDE MODULATION: Need for modulation, amplitude modulation – frequeny spectrum of AM wave, representation of AM, power relations in the AM wave. Generation of AM – Transistor modulators. Suppression of carrier, balanced modulator.

Unit-II:

FREQUENCY MODULATION: Theory of FM, mathematical representation of FM, frequency spectrum of FM wave, narrow band FM, wide band FM, power contents of the carrier and sidebands, Generation of FM signals – Reactance modulator.

Unit-III:

BASIC RECEIVER CIRCUITS: Noise – Thermal, Shot, Noise figure, Super heterodyne Data Receiver block diagram, FM receiver, discriminators – slope, balanced slope, phase discriminator & Ratio detector.

Unit-IV:

PULSE MODULATION: Introduction, Sampling Theorem, TDM, FDM, PAM – Generation & Detection PWM - Generation & Detection PPM - Generation & Detection.

Unit-V:

DIGITAL COMMUNICATIONS: PCM – PCM encoders, Quantization noise, S/N ratio of PCM system, relation between S/N ratio & BW, Companding, Advantages of digital over analog communications. Advantages of shift keying over digital communication. Types of shift keying, ASK Generation & Detection.

Reference Books:

1. Electronic Communications – George Kennedy
2. Antennas and Wave Propagation – G.S.N. Raju – PHI
3. Principles of communication system – Herbert Taub & D.L.Schiling
4. Electronic Communications – Roody & Colen
5. Communication Systems – Hayken --- 4th Edition
6. Advance Electronic communication system – Tomasi wayne
7. Modern digital and analog communication system – B.P.Lathi