ANALOG AND DIGITAL COMMUNICATION

Paper Code	**CEN-404**
Course Credits	**4**
Lectures / week	**3**
Tutorial / week	**1**
Course Description	**UNIT – I** Classification of signals, difference between analog & digital signals, elements of a communication system, Radio frequency spectrum, limitations in communications. Modulation: Needs & Methods. Analog Modulation, Frequency Modulation, Phase Modulation. **UNIT- II** Generation and detection of AM & FM signals. Radio transmitters and receivers. Introduction to transmitting & receiving Antennas. PLL, AGC, AFC, Tracking Diversity. **UNIT- III** Concept of BW, Noises & Channel Capacity of different communication systems such as two wires, Coaxial cable, Wave guides, wireless media, Microwave, satellite, Fibre-optics etc. **UNIT- IV** Information Capacity, sampling Theorem, pulse modulation, PAM, PPM, PWM, Pulse Code Modulation (PCM), Delta modulation, Comparison of PCM & DM, The Complete PCM system, Adaptive DM, Differential PCM (DPCM), Spread Spectrum, Communication Multiplexing(TDM, FDM), Switching (Circuit, Message, & Packet). **UNIT – V** PSK, FSK, DPSK, Synchronous & Asynchronous Communication, Start Stop bit data transfer. Bit level transfer & Byte level data transfer, data transfer efficiency. Modems (Synchronous & Asynchronous) Error detection and correction methods (Parity bit, Block Parity, VRC, LRC, hamming Code, Checksum error detection

etc.)

References / Text Books:	• Advanced Electronics Communication by Wayne Tomasi. • Introduction to Digital & Data Communication by Micheal A Miller. • Communication Electronics by Louis E. Frenzel Jr. • Electronic Communication by John Kennedy.