**Data Communication**

**UNIT - 1** Analog and digital signals; periodic and non periodic signals analog signals time and frequency domains; COMPOSITE SIGNALS: Frequency spectrum and Bandwidth; TRANSMISSION MODES: Serial and Parallel transmission, Asynchronous and Synchronous Transmission, Simplex, Half-Duplex and Full-Duplex communication.

**UNIT - 2** Signal conversions: digital-to-digital conversion, digital-to-analog conversion, analog to digital conversion, analog-to-analog conversion in detail, Basics of Image and Video Compression.

**UNIT - 3** COMMUNICATION MEDIA: guided media and unguided media, Radio frequency allocation, Propagation of Radio waves, Terrestrial microwave, Satellite communication, Cellular Telephony

**UNIT - 4** Multiplexing and Spread Spectrum, frequency division multiplexing (FDM). Time division multiplexing (TDM): inverse multiplexing, wave-division multiplexing, FHSS AND DSSS multiplexing applications: the telephone system: Common carrier services and hierarchies, Analog services, Digital Services; DIGTAL SUBCRIBER LINE (DSL): ADSL, RADSL, HSDL, SDSL,VDSL

**UNIT - 5** Introduction to Image and Video Compression ImageCompression, JPEG, MPEG compression techniques Digitizing Audio and Video data representation formats, Compression of Audio and Video files. Comparison of various methods of compression.

**UNIT – 6** Image and Video Compression Techniques Huffman code, Run-Length Encoding, Relative Encoding, Lempel-Ziv Encoding, Real Time Interactive Audio/Video, RTP, HTTP and WWW.

**Text /** **Reference Books:** 1. Data Communications and Networking by Behrouz A. Forouzan, 4thEdition, Tata McGraw Hill

2. Packet guide to core network protocol by Bruce Hartpence, Oreilly

3. Understanding Data Communications and Networks by William A. Shay, 2nd Edition, Vikas Publishing House.

4Electronic Communication Systems by Kennedy