

Department of Electronics and Telecommunication Engineering

B.Tech IIIRD Year (Electronics & Telecommunication Communication)

Subject Code: EC-35011 Subject Name: DATA COMMUNICATION
Session: JULY-DEC' 24 Semester: A

S. No.	Topic Covered	Remark
1	Concept of amount of information, Entropy of discrete ensembles, Shannon's source coding theorem	
2	Encoding of discrete sources, Mutual information, Channel coding theorem,	
3	examples of Entropy	
4	Examples of Shannon Fano coding , Huffman coding	
5	Calculation of channel capacity of Discrete Memory-less channels	
6	Shannon's channel capacity of AWGN channel	
7	Shannon's limit, Modulation-coding trade-offs.	
8	Introduction to Error Control Coding, Asynchronous and synchronous transmission	
9	Types of error, Error detection, Error correction	
10	Hamming distance, Hamming weight	
11	Parity check codes	
12	Repetition code, Cyclic Redundancy Check (CRC)	
13	Error control using forward error correction (FEC), Linear block codes,	
14	Cyclic codes and examples on Linear block codes	
15	Hamming codes, Convolutional codes	
16	Networks for data communication (LAN, MAN, WAN), Network models: OSI reference/ TCP IP model, Transmission terminology	
17	Test I	
18	Transmission impairments, Data rate limits, Performance parameters	
19	Digital Signal Encoding, Modes of digital data flow (simplex, duplex, full duplex)	

20	Transmission modes and media, Scrambling	
21	Discrete Multi-tone Technique (DMT)	
22	ADSL and Cable TV networks for data transmission	
23	Review of FDM, TDM, WDM, some examples on FDM	
24	Synchronous and Statistical, Synchronization	
25	Digital transmission system hierarchy and their frame structure DS0, DS1, T1, E1	
26	Spread Spectrum: Frequency hop spread spectrum (FHSS)	
27	Direct sequence spread spectrum (DSSS), Multiple access techniques	
28	Multiple access techniques (FDMA, TDMA, CDMA)	
29	Necessity of switching, Introduction to digital switching	
30	Circuit switching, Packet switching	
31	Telephone Network, PSTN, Signalling(SS7)	
32	Dial-up modems , Various categories of Dial-up Modems	
33	Mobile IP and its applications, Traffic engineering	

