2. Computer Networks (CS-112) **(3-0-2)**

Overview of Computer Network, OSI and TCP/IP Reference Models, Guided and Unguided Transmission Media, Analog and Digital communication, Encoding and Modulation, Nyquist

theorem, Shannon's capacity, Switching techniques, multiplexing techniques-TDM, FDM, Framing, Error detection and Error correction – VRC, LRC, CRC, Stop and Wait Protocol, Sliding Window Protocol, Go-back-n ARQ, Selective-Reject ARQ, HDLC, Channel Allocation, ALOHA Systems, CSMA Protocols, Collision Free Protocols, Local Area Networks, Bridges, ATM, Routing: Flooding, Spanning tree, Distance Vector routing, Link state routing, Bellman-Ford and Dijkstra routing algorithms, Congestion control - Leaky Bucket and Token Bucket algorithms , IP Protocol, IP Addressing, ARP, RARP, OSFP, BGP, TCP, UDP, Application Protocols-DHCP, DNS, Telnet, SMPT, Network Security-RSA

References:

1. Andrew S. Tanenbaum, Computer Networks, Fourth Edition, Pearson Education,
2. Behrouz A. Ferouzan, Data Communications and Networking, Second Edition Update, TMH,
3. Alberto Leon-Garcia and Indra Widjaja, Communication Networks, Second Edition, Tata McGraw-Hill,
4. William Stallings, Data and computer Communications, Seventh Edition, Pearson Education