2nd Semester	MCA02001	Computer Networks	L-T-P 3-0-0	3 CREDITS

Module-I (12 Periods)
Overview of the Internet: introduction to data communication, computer networks, Protocol, Layering Scenario, TCP/IP Protocol Suite: The OSI Model, Internet history, standards and administration; Comparison of the OSI and TCP/IP reference model. **Physical Layer:** data and signals: analog and digital, periodic analog signals, digital signals, transmission impairments, data rate limit, Guided transmission media, unguided transmission media.

Module– II (08 Periods)

Data Link Layer: error detection and correction design issues, CRC codes, Elementary Data Link Layer Protocols, sliding window protocols, noisy and noiseless channels.
Multiple Access Protocols: random access, controlled access, channelization**,** ALOHA, CSMA,

Module – III (06 Periods)
Connecting devices: learning bridges, spanning tree bridges, repeaters, hubs, bridges, switches, routers and gateways, definition of multiplexing and types.
Network Layer: Network Layer Design issues, store and forward packet switching, connection less and connection oriented networks-routing algorithms-optimality principle, circuit and packet switching, definition of flooding and multicast**.**
Module – IV (05 Periods)
Routing protocols: Shortest Path, Routing uni-cast Distance Vector Routing, RIP, link state protocols, path vector routing. **Internetworking:** logical addressing, internet protocols**,** IP address, CIDR, IPv4 addressing, IPv6 Protocol addressing, addresses mapping, ICMP, IGMP, ARP, RARP, DHCP.
Module -- V (09 Periods)
Transport Protocols: process to process delivery**,** UDP, TCP, TCP Service Model, TCP Sliding Window, TCP Congestion Control, congestion control and quality of service.
Application Layer- Introduction, providing services, Client server model, Standard client-server application-HTTP, FTP, electronic mail, TELNET, DNS.

Books:
1. Behrouz A. Forouzan, "**Data Communications and Networking**", McGraw Hill Publication
2. Andrew S Tanenbaum, "**Computer Networks**", Pearson Education

3. L. L. Peterson and B. S. Davie, "**Computer Networks**", Elsevier.

1. James F. Kurose, K. W. Ross, "**Computer Networking: A Top-Down Approach Featuring the Internet**", Pearson Education.