

CSE3151: Computer Networks
75 Marks [70% Exam, 20% Quizzes/Class Tests, 10% Attendance]
3 Credits, 33 Contact hours, Exam.Time: 4 hours

Introduction: Computer Networks and Applications, OSI reference model, TCP/IP model and terminology, Connectionless and Connection Oriented services, Service primitives, The ARPANET

Physical Layer: Circuit switching and Packet switching, X-25 protocol, Frame relay and Cell relay, ATM reference model.

Medium Access Sublayer: Pure and slotted ALOHA, Persistent and Non persistent CSMA, CSMA with collision detection and collision free protocols, IEEE standard 802.3 and Ethernet.

Data Link Layer: Types of errors, framing, error detection & correction methods; Flow control, Stop & wait ARQ, Go-Back- N ARQ, Selective repeat ARQ, HDLC.

Network Layer: Internet address, classful address, subnetting, static vs. dynamic routing, shortest path algorithm, flooding, distance vector routing, link state routing, ARP, RARP, IP, ICMP.

Transport Layer: UDP, TCP, Connection management, Addressing, Establishing and Releasing Connection, Congestion control algorithm, Flow control and Buffering, Multiplexing.

Presentation Layer: Data Compression techniques, Frequency Dependent Coding, Context Dependent Encoding.

Application Layer: Internet and intranets, Internet services and goals, DNS, SMTP, FTP, Telnet, HTTP, World Wide Web (WWW), DHCP and BOOTP.

Networking in Practice: Designing LAN, Cabling, Establishing Client- Server network, Configuring: Directory Server, Proxy server, FTP server, E-mail server, web server, DB server, Firewall, Network troubleshooting, network maintenance, network monitoring, Network programming.

Books Recommended:

- | | | | |
|----|---------------------|---|--|
| 1. | Behrouz A. Forouzan | : | TCP/IP Protocol Suite, McGraw-Hill |
| 2. | Andrew S. Tanenbaum | : | Computer Networks, Prentice Hall |
| 3. | William Stallings | : | Data and Computer Communications, Prentice Hall |
| 4. | Behrouz A. Forouzan | : | Data Communications and Networking, McGraw-Hill |