

0944 -DIPLOMA IN INFORMATION TECHNOLOGY & ENGINEERING
SEMESTER -I
094451 COMPUTER NETWORKS
(Common with Computer Engineering)

RATIONALE

The future of computer technology is in computer networks. Global connectivity can be achieved through computer networks. It is important to understand the function of computer networks. Knowledge about hardware and software requirements of networks is essential. The emphasis of the course is towards the various components and software required to make a network operational

DETAILED CONTENTS

1. Networking Basics

Definition of network, Models of network computing, Network models, LAN, MAN and WAN, needs and goals of networking topology, network architecture, need for protocols, OSI Reference Model, layer services, primitives and service access points.

2. Data Link Layer

DLL design issues, elementary data link protocols, sliding window protocols.

3. Network Layer

Brief discussion on need for network layer, routing algorithm, congestion and its control methods, internetworking

4. Transport Layer

Transport service primitives, quality of service, berkeley sockets, elements of transport Protocols

5. Session Layer

Functioning of session layer, OSI primitives, retrotic procedure calls

6. Data Compressing

Huffman arithmetic codes, data encryption, public cryptography and its uses

7. Presentation Layer

Presentation layer primitives, function of presentation layer

8. Application Layer

Application layer design issue, file transfer and management, E-mail, virtual terminal

9. Network Connectivity

- NICs, hubs, switches, repeaters, multiplexers, modems, routers

LIST OF PRACTICALS

1. Identification of various networks components

- connections, BNC, RJ-45, I/O box
 - Cables, Co-axial, twisted pair, UTP
 - NIC (network interface card)
 - Switch, hub
2. Sketch wiring diagrams of network cabling considering a computer lab of 20 systems
 3. Interfacing with the network card (Ethernet)
 4. Preparing of network cables
 5. Establishment of a LAN
 6. Use of **protocols** in establishing LAN
 7. Trouble shooting of networks
 8. Installation of network device drivers
 9. Installation of networks (Peer to Peer Networking client server interconnection)
 10. Use/installation of proxy server

RECOMMENDED BOOKS

1. Computer Networks by Tanenbaum, Andrew S, Prentice Hall of India, New Delhi
2. Data Communications and Networking by Foronzan, Tata McGraw Hill, New Delhi
3. Local area Networks by Peter Hudson
4. Understanding Local area Network by Neil Jenkins