GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN COMPUTER ENGINEERING
SEMESTER: V

Subject Name: **Computer Networking**

Sr. No.	Course Content
1.	**Introduction to Pc Hardware:** 1.1 Definition & historical review n of network 1.2 Network criteria 1.3 Network Applications 1.4 Definition of Protocol 1.5 Standard organization (ISO, CCITT, ANSI, IEEE, ITU, ISOC, IETF)
2.	**Basic Concepts:** 2.1 **Line Configuration** 2.1.1 Point to point 2.1.2 Multipoint 2.2 **Topology** 2.2.1Mesh 2.2.2 Star 2.2.3 Ring 2.2.4 Bus 2.2.5 Tree 2.3 **Categories of network** 2.3.1 LAN 2.3.2 WAN 2.3.3 MAN 2.3.4 ITERNETWORKS 2.4 **Different types of servers** 2.4.1 File 2.4.2 Application 2.4.3 Print 2.4.4 Mail 2.4.5 Proxy 2.4.6 Web servers
3.	**The Reference Model:** 3.1 OSI model & function of each Layer 3.2 TCP/ IP model 3.3 Comparison of OSI & TCP/IP (Refer books 1, 2)
4.	**Transmission Media:** 4.1 Guided Media 4.2 Unguided media

5.	**Networking Basics:** 5.1 **Network devices** 5.1.1 Network Adapters 5.1.2 Hubs 5.1.3 Switches 5.1.4 Routers 5.1.5 Access Points 5.1.6 Gateways 5.2 Network software 5.3 Wired Network 5.4 Wireless Networks 5.5 Bridges
6.	**Network & Transport Layer in Internet:** 6.1 IP protocol 6.2 IP V4 Header & protocol functions 6.3 IP addressing schemes 6.4 Subnet & subnet masking
7.	**Network Applications & Security:** 7.1 **DNS (Domain Name System)** 7.1.1 Name Server 7.2 **File transfer protocol & Trivial FTP** 7.3 **Electronic Mail** 7.3.1 Functions of E-mail systems (mail box & address) 7.3.2 User agents 7.3.3 Message format 7.3.4 Mail Protocols (SMTP, POP, IMAP, MIME) 7.5 **Firewall** 7.5.1 Packet Filter Firewall 7.5.2 Proxy Firewall 7.6 **Cryptography** 7.6.1 Symmetric Key cryptography 7.6.2 Public Key Cryptography
8.	**Building a Small Lan:** 8.1 Installation of Network (H/W, S/W) 8.2 Maintenance of Network (ping, Trace out).

LABORATORY EXPERIENCES:

1. Install & Test Various Network Connectors, Cables Etc.
2. Install and Test Various Network Cards.
3. Study of Network Class and Addressing.
4. Prepare Computer System for Network.
5. Install Network File Server.
6. Install Network Printer Server.
7. Install and test Internet.
8. Study of Router, Repeater And Bridge.
9. Installation and Testing of Network Operating System.
10. Prepare Proxy Server.

Reference Books:

1. Computer Network, by Andrew Tannebaum Pearson.
2. Data Communication & Networking, by Forouzen TMH.
3. Computer and Communication Networks, by Nader F. Mir Pearson.
4. Data Communications & Computer Networks for Computer Scientists & Engineers , by Michael Duck Pearson.
5. Data Communication & Computer Networks,by Brijindra Singh PHI.
6. Data & Computer Communication,by Williams Stallings PHI.