

IV SEMESTER

Course Code	Course Title	H	C	I	E	T
17U4DMC8	COMPUTER NETWORKS	4	4	25	75	100

Objectives:

- To impart the knowledge of computer networks.
- Learning the concept and the various layers of a computer network design.

UNIT-I : Introduction

(12 hours)

Introduction: Uses of Computer Networks- Network Hardware-Network Software-Reference Models. Example Networks: The Internet-Third-Generation Mobile Phone Networks-Wireless LANs-RFID and Sensor Networks - Network Standardization.

UNIT –II: The Physical Layer

(12 hours)

The Theoretical basis for Data Communication-Guided Transmission Media-Wireless Transmission – Communication Satellites-Digital Modulation and Multiplexing-The Public Switched Telephone Network-The Mobile Telephone System.

UNIT- III: Data Link Layer

(12 hours)

Data Link Layer Design Issues: Error Detection and Correction-Elementary of Data Link Protocols- Sliding Window Protocols. The Medium Access Control Sublayer: The Channel Allocation Problem- Multiple Access Protocols-Bluetooth-Data Link Layer Switching.

UNIT- IV: The Network Layer

(12 hours)

Network Layer Design Issues-Routing Algorithms: The Optimality Principle Shortest Path Algorithm-Flooding-Distance Vector Routing-Link State Routing-Hierarchical Routing-Broadcast Routing-Multicast Routing-Congestion Control Algorithms-Quality of Service-Internetworking-The Network Layer in the Internet.

UNIT- V: The Transport Layer

(12 hours)

The Transport Service-Elements of Transport Protocols- The Internet Transport Protocols: User Datagram Protocol (UDP)-Transmission Control Protocol (TCP). The Application Layer: The Domain Name System (DNS)-Electronic mail. The World Wide Web. Network Security: Cryptography-Symmetric Key Algorithms ,Public-Key Algorithms-Digital Signatures.

TEXT BOOK

Tanenbaum and Wetherall, “Computer Networks”, Fifth Edition, Prentice Hall of India, New Delhi, 2010.

REFERENCE BOOKS

1. Stallings, W., “Data and Computer Communications”, Ninth Edition, Prentice Hall of India, New Delhi, 2010.
2. Forouzan, A.B., “Data Communication and Networking”, Fourth Edition, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2005.
3. Peterson, L.L. and Davie, S.B., “Computer Networks”, Fifth Edition, Morgan Kaufmann Publishers, San Francisco, 2011.
4. Douglas, E.C., “Computer Networking and Internets”, Second Edition, Prentice Hall of India, New Delhi, 1999.