

IV SEMESTER

PAPER 13 NETWORK PROGRAMMING

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UNIT - I:

Introduction: Uses of Computer Networks - Network Hardware - Network Software - Reference Models - Example Networks - Physical Layer: Theoretical Basis for Data Communication - Transmission Media - Wireless Transmission - The Telephone System - Narrow Band ISDN - Broad band ISDN and ATM - Cellular Radio - Communication Satellite.

UNIT - II

Data Link Layer: Data Link Layer Design Issues - Error Detection and Correction - Elementary Data Link protocols - Sliding Windows Protocols - Protocol Specification and Verification - Example Data Link Protocols - Network Layer: Network Layer Design Issues - Routing Algorithms - congestion Control Algorithms - Inter Networking - Examples of the Network layer. Transport layer: Transport Layer Design Issues - connection Management - a simple Transport Protocol on top of x.25- examples of the Transport Layer.

UNIT - III

Session Layer: Session Layer Design Issues - Remote Procedure Call - Examples of Session Layer presentation layer: Presentation Layer Design Issues - Abstract Syntax Notation - Data Compression techniques - Cryptography - Examples of the Presentation layer Application layer: Application Layer Design Issues - File Transfer, Access and Management - Electronic Mail - Virtual terminals - Other Application - Examples of Application Layer.

UNIT - IV

Local area networks: Introduction - Types of Networks - What is Local Area Network? Features of Local Area Networks - Networks Topologies - LAN Components - Network Operating System topologies and Transmission Media - Introduction - LAN topologies - Topologies Evaluation Factor - Star or Radial topology - Bus topology - Ring topology - Hybrid topology Star-Ring topology - Network Security: Introduction - Risk Analysis - Types of threats - Levels of Security.

UNIT - V

ICP/IP Networking: ICP/IP Architecture - Structural Overview - Inter Networking Model - Protocol evolution - Division of Functions - Network characteristics - Implementation characteristics - Network Addressing and Routing - Data gram Header - IP Address space - Rote Routing consideration - Hardware Addressing - Common Interior Gateway Protocol - Internal Control Message Protocol Transport Layer: Data flow, ports, Sockets - User Data gram protocol - Transmission Control Protocol - ICP Header - Connection Establishment and Termination - ICP Reliable Delivery & Flow Control - Application and Services - Domain name System - Remote Login - Mail Exchange - File Transfer - Remote Procedure Call - Remote File Access - Security - x Window System.

Text Books:

1. For Unit - I: "Computer Networks", Andrew S. Tanenbaum -3e, Prentice Hall of India.
2. For Unit - I & II: "Computer Networks", Andrew S. Tanenbaum -2e, Prentice Hall of India.
3. For Unit-IV: "Local Area Networks", S.K. Basandra and S. Jaiswal Galgotia Pub. Pvt. Ltd.
4. For Unit - V: "TCP/IP Networking", David H Peterson - McGraw Hill International

Reference Books:

1. Introduction to Networking - Barry Nance, PHI
2. Inside Networks - James K Hardy, PHI.