

I Year II Semester
Code: 17CS202

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COMPUTER NETWORKS

UNIT– I:

Introduction: Network Topologies WAN, LAN, MAN. Reference models- The OSI Reference Model-the TCP/IP Reference Model –A Comparison of the OSI and TCP/IP Reference Models

UNIT–II:

Physical Layer–Fourier Analysis–Band width Limited Signals– The Maximum Data Rate of a Channel-Guided Transmission Media, Digital Modulation and Multiplexing: Frequency Division Multiplexing, Time Division Multiplexing, Code Division Multiplexing Data Link Layer Design Issues, Error Detection and Correction, Elementary Data Link Protocols, Sliding Window Protocols

UNIT–III:

The Data Link Layer - Services Provided to the Network Layer – Framing – Error Control – Flow Control, Error Detection and Correction – Error-Correcting Codes – Error Detecting Codes, Elementary Data Link Protocols- A Utopian Simplex Protocol-A Simplex Stop and Wait Protocol for an Error free channel-A Simplex Stop and Wait Protocol for a Noisy Channel, Sliding Window Protocols-A One Bit Sliding Window Protocol-A Protocol Using Go-Back-N-A Protocol Using Selective Repeat

UNIT–IV:

The Medium Access Control Sub layer-The Channel Allocation Problem-Static Channel Allocation-Assumptions for Dynamic Channel Allocation, Multiple Access Protocols-Aloha-Carrier Sense Multiple Multiple Access Protocols-Collision-Free Protocols-Limited Contention Protocols-Wireless LAN Protocols, Ethernet-Classic Ethernet Physical Layer-Classic Ethernet MAC Sub layer Protocol-Ethernet Performance-Fast Ethernet Gigabit Ethernet-10-Gigabit Ethernet-Retrospective on Ethernet, Wireless Lans-The 802.11 Architecture and Protocol Stack-The 802.11 Physical Layer-The 802.11 MAC Sublayer Protocol-The 802.11 Frame Structure-Services

UNIT–V:

Design Issues-The Network Layer Design Issues–Store and Forward Packet Switching-Services Provided to the Transport layer-Implementation of Connection less Service-Implementation of Connection Oriented Service-Comparison of Virtual Circuit and Datagram Networks, Routing Algorithms-The Optimality principle-Shortest path Algorithm, Congestion Control Algorithms- Approaches to Congestion Control-Traffic Aware Routing-Admission Control-Traffic Throttling-Load Shedding.

TEXTBOOKS:

1. Computer Networks, Tanenbaum and David J Wetherall, 5th Edition, Pearson Edu, 2010

2. Computer Networks: A Top Down Approach, Behrouz A. Forouzan, Firouz Mosharraf, McGrawHill Education

REFERENCEBOOKS:

1. Larry L. Peterson and Bruce S. Davie, "Computer Networks - A Systems Approach" (5th edition), Morgan Kaufmann/ Elsevier, 2011