

MC5302 COMPUTER NETWORKS

DETAILED SYLLABUS

OBJECTIVES:

- To understand networking concepts and basic communication model
- To understand network architectures and components required for data communication.
- To analyze the function and design strategy of physical, data link, network layer and transport layer
- To acquire basic knowledge of various application protocol for internet security issues and services.

UNIT I NETWORK FUNDAMENTALS

Uses of Networks – Categories of Networks -Communication model –Data transmission concepts and terminology – Protocol architecture – Protocols – OSI – TCP/IP – LAN Topology - Transmission media.

UNIT II DATA LINK LAYER

Data link control - Flow Control – Error Detection and Error Correction - MAC – Ethernet, Token ring, Wireless LAN MAC – Blue Tooth – Bridges.

UNIT III NETWORK LAYER

Network layer – Switching concepts – Circuit switching – Packet switching –IP — Datagrams —IP addresses- IPV6– ICMP – Routing Protocols – Distance Vector – Link State- BGP.

UNIT IV TRANSPORT LAYER

Transport layer –service –Connection establishment – Flow control – Transmission control protocol – Congestion control and avoidance – User datagram protocol. -Transport for Real Time Applications (RTP).

UNIT V APPLICATIONS AND SECURITY

Applications - DNS- SMTP – WWW –SNMP- Security –threats and services - DES- RSA.

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3. Douglas E. Comer, —Internetworking with TCP/IP (Volume I) Principles, Protocols and Architecture, Sixth Edition, Pearson Education, 2013.
4. Forouzan, "Data Communication and Networking", Fifth Edition, TMH 2012.
5. James F. Kurose, Keith W. Ross, "Computer Networking: A Top-down Approach, Pearson Education, Limited, sixth edition,2012.
6. John Cowley, "Communications and Networking: An Introduction", Springer Indian Reprint, 2010.
7. Larry L. Peterson & Bruce S. Davie, "Computer Networks – A systems Approach", Fifth Edition, Morgan Kaufmann, 2012