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Computer Networks

Course Outcomes:

- Understand the concept of network reference models.
- Able to analyze various connecting devices of a network and describe multichannel access protocols.
- Analysis of routing algorithm and congestion algorithms and classify IPV4 addressing scheme.
- Discuss application layer protocols.

UNIT - I:

Overview of the Internet: Definition of networks, Topology, Protocol, Layering Scenario, TCP/IP Protocol Suite: The OSI Model, Internet history standards and administration; Comparison of the OSI and TCP/IP reference model.

Physical Layer: Guided transmission media, wireless transmission media.

UNIT - II:

Data Link Layer - Design issues, CRC codes, Elementary Data Link Layer Protocols, sliding window protocol.
Multi Access Protocols - ALOHA, CSMA, Collision free protocols, Ethernet- Physical Layer, Ethernet Mac Sub layer – CSMA/CD with Binary Exponential Back off, Ethernet Performance, Switched, Fast, Gigabit, 10-Gigabit Ethernets, Data link layer switching & use of bridges, learning bridges, spanning tree bridges, repeaters, hubs, bridges, switches, routers and gateways.

UNIT - III:

Network Layer: Network Layer Design issues, routing algorithms-optimality principle, shortest path, flooding, Distance Vector Routing, **Count to Infinity Problem**, Hierarchical Routing, Congestion control algorithms, admission control

Internetworking: Tunneling, Internetwork Routing, Packet fragmentation, IPv4, IPv6 Protocol, IP addresses, CIDR, ICMP, ARP, RARP, DHCP

UNIT - IV:

Transport Layer: Services provided to the upper layers elements of transport protocol-addressing connection establishment, connection release, Connection Release, Crash Recovery.

The Internet Transport Protocols: UDP-RPC, Real Time Transport Protocols, The Internet Transport Protocols- Introduction to TCP, The TCP Service Model, The TCP Segment Header, The Connection Establishment, The TCP Connection Release, The TCP Connection Management Modeling, The TCP Sliding Window, The TCP Congestion Control, The future of TCP.

UNIT - V:

Application Layer- Introduction, providing services, Applications layer paradigms, Client server model, Standard client-server application-HTTP, FTP, electronic mail, TELNET, DNS.

TEXT BOOKS:

1. Data Communications and Networking - Behrouz A. Forouzan, Fifth Edition TMH, 2013.
2. Computer Networks - Andrew S Tanenbaum, 4th Edition, Pearson Education.

REFERENCE BOOKS:

1. An Engineering Approach To Computer Networks-S.Keshav ,2nd Edition ,Pearson Education.
2. Understanding Communications And Networks,3rd Edition,W.A .Shay,Cengage Learning.

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1. **DR. SIDDHARTHAGHOSH** Chairman , BOS for AI&DS, VJIT	2. **DR. OBV RAMANAIAH** JNTUH Nominee	3. **DR. MV KRISHNAMURTHY** MD, UOSD Pvt. Ltd.	4. **MR. PRASAD YERRAMSETTI** Lead Program Manager in Data Science, Microsoft
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			DATE OF BOS MEETING
9. **DR. K. VASANTH** HOD, ECE, VJIT	10. **DR. D ARUNA KUMARI** Professor in CSE, VJIT	11. **PROF. B. SRINIVASULU** HOD, IT, VJIT	**23 – 06 – 2020**

III YEAR B.Tech. AI – I Sem

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