COMPUTER NETWORKS
(Common for CSE & IT)

Course Code : 15CT1124

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Course Outcomes:

At the end of the Course, the Student will be able to:

CO 1 Explain Network Models.

CO 2 Compute error detection and correction codes.

CO 3 Discuss routing algorithms.

CO 4 Differentiate TCP and UDP protocols.

CO 5 Know security protocols

UNIT-I **(10 Lectures)**

NETWORK MODELS:

Layered Tasks, WAN, LAN, MAN, OSI model, TCP/ IP protocol stack, addressing (Text book 2), Novell Networks Arpanet, Internet. (Text book 1)

PHYSICAL LAYER:

Transmission media: copper, twisted pair, wireless; switching and encoding asynchronous communications; Narrow band ISDN, broad band ISDN. (Text book 1)

UNIT-II **(12 Lectures)**

DATA LINK LAYER:

Design issues, framing, error detection and correction, CRC, Elementary data link protocols, Sliding Window Protocol, Slip, and HDLC.

MEDIUM ACCESS SUB LAYER:

Random access, Controlled access, Channelization, IEEE 802.X Standards, Ethernet. (Text book 2)

UNIT-III (11 Lectures)

NETWORK LAYER:

Network Layer Design Issues, Routing Algorithms, Internetworking, Network Layer in Internet. (Text book 1)

CONGESTION CONTROL:

General Principles, policies, traffic shaping, flow specifications, Congestion control in virtual subnets, choke packets, loads shedding, jitter control. (Text book 2)

UNIT-IV (10 Lectures)

TRANSPORT LAYER:

Transport Services, Elements of Transport Protocols, Internet Transport Protocols (TCP & UDP); ATM Reference model. (Text book 1)

UNIT-V (7 Lectures)

APPLICATION LAYER:

Network Security, Domain name system, SNMP, Electronic Mail: (SMTP, POP3,IMAP, MIME)

TEXT BOOKS:

1. Andrew S Tanenbaum ,"Computer Networks", 6th Edition. Pearson Education / PI, 2012.
2. Behrouz A. Forouzan ,"Data Communications andNetworking", 4thEdition TMH, 2012.

REFERENCES:

1. S.Keshav, "An Engineering Approach to Computer Networks", 2ndEdition, Pearson Education, 2001.
2. William, A. Shay , "Understanding communications and Networks", 3rdEdition, Thomson Publication, 2006

WEB REFERENCES:

1. http://nptel.iitm.ac.in/courses/Webcoursecontents/IT%20Kharagpur/Computer%20networks/New_index1.html
2. http://nptel.iitm.ac.in/courses/IIT-MADRAS/Computer_Networks/index.php.