

Course Type	Course Code	Name of Course	L	T	P	Credit
DE	ECD403	Computer Networks	3	0	0	9

Course Objective
- Understand the division of network functionalities into layers. - Be familiar with the components required to build different types of networks Be exposed to the required functionality at each layer - Learn the flow control and congestion control algorithms
Learning Outcomes
- Identify the components required to build different types of networks - Choose the required functionality at each layer for given application - Identify solution for each functionality of each layer - Trace the flow of information from one node to another node in the network

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Module 1: FUNDAMENTALS & LINK LAYER Building a network – Requirements – Layering and protocols – Internet Architecture – Network software – Performance ; Link layer Services – Framing – Error Detection – Flow control	09	- To understand the basic concept of data communication networks - To understand the protocols for framing, error control and flow control
2	Module 2: MEDIA ACCESS & INTERNETWORKING: Media access control – Ethernet (802.3) – Wireless LANs – 802.11 – Bluetooth – Switching and bridging – Basic Internetworking (IP, CIDR, ARP, DHCP, ICMP)	09	- To understand the Ethernet protocol and its standards - To get a profound knowledge in internetworking
3	Module 3: ROUTING: RIP, OSPF, metrics – Switch basics – Global Internet (Areas, BGP, IPv6), Multicast – addresses – multicast routing (DVMRP, PIM)	08	To get a profound knowledge in different types of routing
4	Module 4: TRANSPORT LAYER: Overview of Transport layer – UDP – Reliable byte stream (TCP) – Connection management – Flow control – Retransmission – TCP Congestion control – Congestion avoidance (DECbit, RED) – QoS – Application requirements	08	- To understand the functions in transport layer - To understand the TCP and UDP protocols.
5	Module 5: APPLICATION LAYER: Traditional applications -Electronic Mail (SMTP, POP3, IMAP, MIME) – HTTP – Web Services – DNS – SNMP	08	To understand the functions and applications in application layer.

Text book:

1. Larry L Peterson, Bruce S. Davie, “Computer Networks: A Systems Approach”, Fifth edition, Practical Perspective” (Third Edition) The Morgan Kaufmann Series in Networking, David Clark, Series Editor, 2010

Reference books:

1. James F. Kurose, Keith W. Ross, “Computer Networking – A Top-Down Approach Featuring the Internet”, Fifth Edition, Pearson Education, 2009.
2. Nader. F. Mir, “Computer and Communication Networks”, Pearson Prentice Hall Publishers, 2010.
3. Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, “Computer Networks: An Open Source Approach”, Mc Graw Hill Publisher, 2011.
4. Behrouz A. Forouzan, “Data communication and Networking”, Fourth Edition, Tata McGraw – Hill, 2011.