COMPUTER NETWORKS
[Revised Credit System]
(Effective from the academic year 2018-19)
SEMESTER - V

Subject Code	**CSE 3152**	**IA Marks**	**50**
Number of Lecture Hours/Week	**03**	**Exam Marks**	**50**
Total Number of Lecture Hours	**36**	**Exam Hours**	**03**

CREDITS – 03

Course objectives: This course will enable students to

- To understand Basic architecture of Computer Network and its Layered Architecture
- To study various Application Layer Protocols and their implementations
- To study Transport Layer Protocols
- To study various Routing Protocols
- To understand various media access and sharing techniques

Module -1	**Teaching Hours**
COMPUTER NETWORKS AND THE INTERNET: What Is the Internet? The Network Edge, The Network Core, Delay, Loss, and Throughput in Packet-Switched Networks, Protocol Layers and their Service Models, History of Computer Networking, and the Internet **Text Book 1 :** Chapter 1: 1.1 to 1.7 Excluding 1.6	**03 Hours**
Module -2	
APPLICATION LAYER: Principles of Network Applications, The Web and HTTP, File Transfer: FTP, Electronic Mail in the Internet, SMTP, DNS—The Internet's Directory Service, Peer-to-Peer Applications, Socket Programming: Creating Network Applications- Socket Programming with UDP, Socket Programming with TCP **Text Book 1 :** Chapter 2: 2.1 to 2.7 Excluding 2.6	**06 Hours**
Module - 3	

TRANSPORT LAYER: Introduction and Transport-Layer Services, Multiplexing and Demultiplexing, Connectionless Transport: UDP, Principles of Reliable Data Transfer, Connection Oriented Transport: TCP, Principles of Congestion Control, TCP Congestion Control **Text Book 1:** Chapter 3: 3.1 to 3.7	**10 Hours**
Module-4	
THE NETWORK LAYER: Introduction, Virtual Circuit and Datagram Networks, What's Inside a Router? The Internet Protocol (IP): Forwarding and Addressing in the Internet, Datagram Format, IPv4 Addressing, Internet Control Message Protocol (ICMP), IPv6 Routing Algorithms- The Link-State (LS) Routing Algorithm, The Distance-Vector (DV) Routing Algorithm, Hierarchical Routing; Routing in the Internet –Intra-AS Routing in the Internet: RIP, Intra-AS Routing in the Internet: OSPF,Inter-AS Routing: BGP, Broadcast and Multicast Routing **Text Book 1 :** Chapter 4: 4.1 to 4.7	**12 Hours**
Module-5	
THE LINK LAYER: LINKS, ACCESS NETWORKS, AND LANS: Introduction to the Link Layer, Error-Detection and -Correction Techniques, Multiple Access Links and Protocols, Switched Local Area Networks- Link-Layer Addressing and ARP, Ethernet, Link-Layer Switches, Virtual Local Area Networks(VLANs). **Text Book 1:** Chapter 5: 5.1 to 5.4 Excluding 5.5 Introduction to Physical Layer and Transmission Media **Reference Book 1** : Chapter 7: 7.1 6	**05 Hours**
Course outcomes:	
After studying this course, students will be able to: 1. Acquire knowledge of i. How Computer Network is structured. ii. What are the different types of Application Layer protocols iii. How End to End Communication works	

iv. How Data Packets are Routed from One end to another

2. Analyze the working of Routers, Routing Protocols
3. Analyze the Network Data Traffic
4. Understand the implementation of various Client-Server based Applications in UDP/TCP
5. Design LAN/WAN

Text Books:

1. James F. Kurose & Keith W. Ross, *Computer Networking A Top-Down Approach*, (6e), Pearson Education,2013
2. Larry L. Peterson and Bruce S. Davie, *Computer Networks- A Systems approach*, (5e), Elsevier-2016

Reference Books:

1. Behrouz A. Forouzan, Firouz Mosharraf, *Computer Networks A top Down Approach* , Mc-Graw Hill, 2012
2. Andrew S. Tanenbaum & David J. Wetherall, *Computer Networks*, (5e), Pearson Education,2013