CSE11115	Computer Networks	L	T	P	C
Version 1.0	Contact hour-45	3	0	0	3
Pre-requisites/Exposure	Computer Fundamentals				
Co-requisites	--				

Course Objectives:

- To give a brief overview of fundamentals of computer network
- To conceptualize understanding in transmission media and data communication.
- To propagate a functional overview of addressing techniques and protocols
- To analyse file transfer protocols, and concepts of secured data communication technique

Course Outcomes:

On the completion of this course the student will be able to

CO1: Explain key networking concepts, principles, design issues and techniques at all protocol layers. CO2: Contrast between different types of networks (e.g., wide area networks vs. local area networks,

wired vs.wireless) in terms of their characteristics and protocols used.

CO3: Describe different types of networked applications and what underlying network protocols are needed to meettheir diverse requirements.

CO4: Distinguish between control and d ata planes in computer networks, and their corresponding architectures inreal-world networks (including the Internet).

CO5: Illustrate reliable transport protocols and networked system architectures via implementation using SocketAPIs, measurement and analysis.

Course Description:

In this course, students will study architectures, protocols, and layers in computer networks and develop client-server applications. Topics include the OSI and TCP/IP models, transmission fundamentals, flow and error control, switchingand routing, network and transport layer protocols, local and wide-area networks, wireless networks, client-server models, and network security. Students will extend course topics via programming assignments, library assignments and other requirements.

Course Content:

Units	Lecture Hours
Unit-I: Unit Heading: Idea Of Networking What Is the Internet?, Network Edge, Network Core, Delay, Loss, and Throughput in Packet-Switched Networks, Protocol Layers and Their Service Models, Networks Under Attack. Principles of	9

Units	Lecture Hours
Network Applications, Web andHTTP, Electronic mail in Internet, DNS ry Service, Peer-to-Peer Applications. LAN Topology, Encoding Technique, Transmission Mode, layers of networking	
Unit-II: Unit Heading: Datalink layer Concept Design issues, error detection and correction, elementary data link protocols, sliding window protocols, example data link protocols - HDLC, the data link layer in the internet. THE MEDIUM ACCESS SUBLAYER: Channel allocations problem, multiple access protocols, Ethernet, Data Link Layer switching, Wireless LAN, Broadband Wireless, Bluetooth	**9**
Unit-III: Unit Heading: Network and Transport layer Network layer design issues, routing algorithms, Congestion control algorithms, Internetworking, the networklayer in the internet (IPv4 and IPv6), Quality of Service. Transport service, elements of transport protocol, Simple Transport Protocol, Internet transport layer protocols:UDP and TCP. Addressing Mode Class A,B,C,D	**9**
Unit-IV: Unit Heading: Socket Over view Client server Model.What is socket.TCP socket over view, Socket options getsocket and setsocket functions generic socket options IP socket options ICMP socket options TCP socket options Elementary UDP sockets UDP echo Server UDP echo Client Multiplexing TCP and UDP sockets Domain name system gethostbyname function Ipv6 support in DNS gethostbyadr function getservbyname and getservbyportfunctions	**9**
Unit-V: Unit Heading: Application Layer Domain name system, electronic mail, World Wide Web: architectural overview, dynamic web document and http. APPLICATION LAYER PROTOCOLS: Simple Network Management Protocol, File Transfer Protocol, Simple Mail Transfer Protocol, Telnet.Socket Programming,Network security,Leaky Bucket application,WSN concept andrealtime application case study.	**9**

Examination Scheme:

Components	Mid Term	Class Assessment	End Term
Weightage (%)	20	30	50

Relationship between Course Outcomes (COs) and Program Outcomes (POs):

1 = Weakly Mapped

2 = Moderately Mapped3 = Strongly Mapped

Course Code	Course Name	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CSE11	Compu	CO1111	2	2	1	1	3	1	2	-	3	-	-	1	1	3	1

Course Code	Course Name	COs	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
115	ter	5.1															
	Networks	CO11115.2	3	2	2	3	2	1	2	-	2	3	2	3	2	1	1
		CO1111	3	2	2	2	3	2	3	-	1	-	-	3	2	2	2
		5.3															
		CO1111	1	1	2	1	2	2	1	-	3	2	2	2	2	1	2
		5.4															
		CO1111	1	3	1	1	2	2	2	-	3	2	3	2	1	3	2
		5.5															
		CO1111	2.	2.	1.	1.	2.	1.	2.	-	2.	2.3	2.3	2.2	1.6	2.0	1.6
		5	0	0	6	6	4	6	0		4	3	3				