Course Code	18CSC302J	Course Name	COMPUTER NETWORKS	Course Category	C	Professional Core	L	T	P	C
							3	0	2	4

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	CSE	Data Book / Codes/Standards		Nil	

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Learning			Program Learning Outcomes (PLO)														
		1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO – 3
CLR-1 :	Describe the importance of various Internet protocols like ARP, RARP, ICMP, Multicasting and multi routing, SCTP																		
CLR-2 :	Understand the transport layer protocols , application layer protocol and its characteristics																		
CLR-3 :	Learn and Understand IPV6 technologies																		
CLR-4 :	Work with client server sockets and develop related applications to communicate with each other.																		
CLR-5 :	Understand the wide area network protocols																		
CLR-6 :	Learn the basics of DSL,ATM,HDLC,MPLS																		
Course Learning Outcomes (CLO):	*At the end of this course, learners will be able to:*																		
CLO-1 :	Identify the basics of different types of network and transport layer protocols	3	80	70	L	H	-	H	L	-	-	-	L	L	-	H	-	-	-
CLO-2 :	Design and implement the socket programming	3	85	75	M	H	-	M	L	-	-	-	M	L	-	H	-	-	-
CLO-3 :	Enumerate the types of application layer protocols	3	75	70	M	H	-	H	L	-	-	-	M	L	-	H	-	-	-
CLO-4 :	Analyze and compare the IPv4 and IPv6 protocols	3	85	80	M	H	-	H	L	-	-	-	M	L	-	H	-	-	-
CLO-5 :	Familiarize with wide area technologies	3	85	75	H	H	-	H	L	-	-	-	M	L	-	H	-	-	-
CLO-6 :	Describe the working of DSL,ATM,PPP,	3	80	70	L	H	-	H	L	-	-	-	L	L	-	H	-	-	-

Duration (hour)		15	15	15	15	15
S-1	SLO-1	IP header	Byte ordering	DNS	IPV6 Overview	DSL
	SLO-2	IP fragmentation	Byte ordering conversion functions	DNS in the Internet,	IPV6 Features	Other DSL Technology
S-2	SLO-1	ARP	System calls	DNS Resolution	IPV6 Addressing Modes	DSL Benefits
	SLO-2	RARP	Sockets	DNS Messages	IPV6 Address Types	Cable Technology
S-3	SLO-1	ICMP –introduction	System calls used with Sockets	TELNET	Introduction	Compare DSL Vs Cable
	SLO-2	ICMP-Messages	Iterative and concurrent server	*SSH*	Address Space Allocation	Frame Relay, VPN
S 4-5	SLO-1	Study of necessary header files with respect to socket programming.	UDP Echo Client Server Communication	Full Duplex Chat Using TCP/IP	ARP implementation Using UDP	Implementation of VPN
	SLO-2					
S-6	SLO-1	Debugging tools	Socket Interface	FTP	Global Unicast Addresses	ATM Introduction
	SLO-2	ICMP package	Structure and Functions of Socket	TFTP	Auto configuration	ATM Cell Format
S-7	SLO-1	UDP Datagram	Remote Procedure Call	WWW Architecture	Renumbering	ATM Layer
	SLO-2	UDP characteristics	RPC Model, Features	WWW Documents	IPV6 Routing Protocols	AAL Layer
S-8	SLO-1	TCP Header	TCP Client Server Program	HTTP	Introduction	ATM Application
	SLO-2	TCP connection establishment process	Input, Output Processing Module	HTTP Request and Reply	IPV6 Packet Format	PPP
S 9-10	SLO-1	Study of Basic Functions of Socket Programming	Concurrent TCP/IP Day-Time Server	Implementation of File Transfer Protocol	Study of IPV6 Addressing & Subnetting	Communication Using HDLC
	SLO-2					
S-11	SLO-1	TCP Error Control	UDP Client Server Program	DHCP Operation	Comparison between IPV4 and IPV6 Header	PPP Services, Components
	SLO-2	TCP Congestion Control	UDP Control block table & Module	DHCP Configuration	IPV4 to IPV6 Tunneling	PPP frame and byte stuffing
S-12	SLO-1	TCP Flow Control	UDP Input & Output Module	*SMTP*	IPV4 to IPV6 Translation Techniques	HDLC
	SLO-2	*Multicasting*	SCTP Sockets	*POP3*	*NAT Protocol Translation*	HDLC Transfer Modes, Frame

S-13	SLO-1	*Multicasting and Multicast Routing Protocol*	SCTP Services and Features, Packet Format	*IMAP*	*IPV6 Mobility*	*Types of HDLC Frame*
	SLO-2	*Stream Control Transmission Protocol*	SCTP Client/Server	*MIME*	*Protocols Changed to Support IPV6*	MPLS
S 14-15	SLO-1 SLO-2	*Simple TCP/IP Client Server Communication*	Half Duplex Chat Using TCP/IP	*Remote Command Execution Using UDP*	*Implementation of NAT*	Communication Using PPP

Learning Resources	1. *Behrouz A. Forouzan, "TCP IP Protocol Suite " 4th edition, 2010, McGraw-HillISBN: 0073376043* 2. *Douglas E. Comer, Internetworking with TCP/IP, Principles, protocols, and architecture,Vol 1 5th Edition,2006 ISBN: 0131876716, ISBN: 978-0131876712*	3. *Richard Stevens, Unix Network Programming, vol.1, 3rd edition, 2003, McGraw-HillISBN 0-07-246060-1*

Learning Assessment

	Bloom's Level of Thinking	Continuous Learning Assessment (50% weightage)								Final Examination (50% weightage)	
		CLA – 1 (10%)		CLA – 2 (15%)		CLA – 3 (15%)		CLA – 4 (10%)#			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	*20 %*	*20%*	*15 %*	*15%*	*15 %*	*15%*	*15 %*	*15%*	*15 %*	*15%*
Level 2	Apply Analyze	*20 %*	*20 %*	*20 %*	*20%*	*20 %*	*20%*	*20 %*	*20%*	*20 %*	*20%*
Level 3	Evaluate Create	*10 %*	*10%*	*15 %*	*15%*	*15 %*	*15%*	*15 %*	*15%*	*15 %*	*15%*
	Total	100 %		100 %		100 %		100 %		100 %	

CLA – 4 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,

Course Designers

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