

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)														
CLR-1 :	Describe the importance of various Internet protocols like ARP, RARP, ICMP, Multicasting and multi routing, SCTP	1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-2 :	Understand the transport layer protocols , application layer protocol and its characteristics	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-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:	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
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	Renummering	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	Simple TCP/IP Client Server Communication	Half Duplex Chat Using TCP/IP	Remote Command Execution Using UDP	Implementation of NAT	Communication Using PPP
	SLO-2					

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

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	20 %	20%	15 %	15%	15 %	15%	15 %	15%	15 %	15%
Level 2	Understand										
	Apply	20 %	20 %	20 %	20%	20 %	20%	20 %	20%	20 %	20%
Level 3	Analyze										
	Evaluate	10 %	10%	15 %	15%	15 %	15%	15 %	15%	15 %	15%
	Create										
	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		
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
1.Thamaraiselvam.S, Zoho Corporation. thamaraiselvams@gmail.com	1.Dr.Uma,Anna University ,umamesh@auist.net	1.Dr.K.Venkatesh,SRMIST,2.Dr.G.Usha,SRMIST
2.Mithun,Cognizant, Mithun.SS@cognizant.com	2. Dr.KunvarSingh, NIT Trichy,kunwar@nitt.edu	3.Dr.J.Kalaivani,SRMIST,4.Mr.GodwinPon,SRMIST