

Course Code	18CSS202J	Course Name	COMPUTER COMMUNICATIONS	Course Category	S	Engineering Sciences	L	T	P	C
							2	0	2	3

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Computer Science and Engineering			Data Book / Codes/Standards	Nil

Course Learning Rationale (CLR):		The purpose of learning this course is to:		Learning			Program Learning Outcomes (PLO)															
CLR-1:		Understand the basic services and concepts related to Internetwork			1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-2:		Understand the layered network architecture			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:		Acquire knowledge in IP addressing																				
CLR-4:		Exploring the services and techniques in physical layer																				
CLR-5:		Understand the functions of Data Link layer																				
CLR-6:		Implement and analyze the different Routing Protocols																				
Course Learning Outcomes (CLO):		At the end of this course, learners will be able to:																				
CLO-1:		Apply the knowledge of communication			2	80	70	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CLO-2:		Identify and design the network topologies			3	85	75	H	-	H	-	-	-	-	-	-	-	-	M	-	-	-
CLO-3:		Design the network using addressing schemes			3	75	70	H	H	-	-	-	-	-	-	-	-	-	M	-	-	M
CLO-4:		Identify and correct the errors in transmission			1	85	80	H	H	-	-	-	-	-	-	-	-	-	-	-	-	-
CLO-5:		Identify the guided and unguided transmission media			1	85	75	H	-	-	H	-	-	-	-	-	-	-	-	-	-	-
CLO-6:		Design and implement the various Routing Protocols			3	80	70	H	H	H	H	H	-	-	-	-	-	-	M	-	-	M

Duration (hour)	12	12	12	12	12
S-1	SLO-1	Evolution of Computer Networks, Network categories	IPv4 Addressing, Address space	Line coding: Unipolar scheme	Framing, Flow Control Mechanisms
	SLO-2	Data Transmission Modes, Network topologies	Dotted Decimal Notation. Classful Addressing	Polar schemes, Bipolar schemes	Forward Techniques, Forwarding Process
S-2	SLO-1	Circuit Switching and Packet Switching	Subnet Mask	Amplitude shift keying, Frequency shift keying	Sender side Stop and Wait Protocol, Receiver side Stop and Wait Protocol
	SLO-2	Protocols and standards	Subnetting	Goback N ARQ, Selective Reject ARQ	Intradomain Routing and Interdomain Routing
S 3-4	SLO-1	Lab 1: IP Addressing	Lab 4: Router Configuration (Creating Passwords, Configuring Interfaces)	Phase shift keying, Pulse code Modulation, Delta Modulation	CRC, Checksum
	SLO-2		Lab 7: RIP v1	Lab 10: EIGRP Authentication and Timers	Static Routing and Dynamic Routing
S-5	SLO-1	Layers in the OSI model, Functions of Physical layer, data link layer	Special Addresses	Lab 13: Examining Network Address Translation (NAT)	Distance Vector Routing, Problem Solving
	SLO-2	Functions of Network layer, Transport layer	Special Addresses	Types of Errors	Link state Routing
S-6	SLO-1	Functions of Session, Presentation layer and Application layer	Classless Addressing	Types of Errors	Forward Error correction
	SLO-2	TCP/IP protocol suite, Link layer protocols	TDM	Problem solving	Path vector Routing
S 7-8	SLO-1	Lab 2: Subnetting (VLSM)	Problem Solving	CSMA, CSMA/CD	Lab 11: Single-Area OSPF Link Costs and Interface
	SLO-2		Lab 5: Basic Switch Configuration: Vlan	Lab 8: RIP v2	Lab 14: BGP Configuration

S-9	SLO-1	Network layer protocols	Private Address, NAT, Supernetting	Guided Media: Twisted Pair, Coaxial Cable Fiber optic cable	Hamming Distance	RIP v1, RIP v2
	SLO-2	Transport layer protocols	<i>Hub, Repeaters, Switch</i>	Unguided media: Radio waves	Correction Vs Detection	OSPF
S-10	SLO-1	Serial and Parallel Transmissions	<i>Bridge</i>	Microwaves	<i>HDLC</i>	EIGRP
	SLO-2	Addressing	<i>Structure of Router</i>	Infrared	<i>PPP</i>	BGP
S 11-12	SLO-1 SLO-2	Lab 3: LAN Configuration using straight through and cross over cables	Lab 6: Static and Default Routing	<i>Lab 9: EIGRP Configuration, Bandwidth, and Adjacencies</i>	Lab 12: Multi-Area OSPF with Stub Areas and Authentication	<i>Lab 15: Configuring Static and Default Routes</i>

Learning Resources	1. Behrouz A. Forouzan, "Data Communications and Networking" 5th ed., 2010	3. William Stallings, Data and Computer Communications, 9th ed., 2010
	2. Bhushan Trivedi, "Data Communication and Networks" 2016	4. Todd Lammle, CCNA Study Guide, 7th ed. 2011

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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