Course Code	18CSS202J	Course Name	COMPUTER COMMUNICATIONS	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	Computer Science and Engineering	Data Book / Codes/Standards	Nil		

Course Objective: The purpose of learning this course is to:

1	Understand the basic services and concepts related to Internetwork
2	Understand the layered network architecture
3	Acquire knowledge in IP addressing
4	Exploring the services and techniques in physical layer
5	Understand the functions of Data Link layer
6	Implement and analyze the different Routing Protocols

Learning 1-6

Program Learning Outcomes (PLO)

Course Outcomes (CO): At the end of this course, learners will be able to:

CO		Level of Thinking	Expected Proficiency (%)	Expected Attainment (%)	1 Engineering Knowledge	2 Problem Analysis	3 Design & Development	4 Analysis, Design, Research	5 Modern Tool Usage	6 Society & Culture	7 Environment & Sustainability	8 Ethics	9 Individual & Team Work	10 Communication	11 Project Mgt. & Finance	12 Life Long Learning	13 PSO – 1	14 PSO – 2	15 PSO – 3
CO-1	Apply the knowledge of communication	2	80	70	3	-	-	-	-	-	-	-	-	-	-	3	-	-	-
CO-2	Identify and design the network topologies	3	85	75	3	2	3	-	-	-	-	-	-	-	-	3	-	-	-
CO-3	Design the network using addressing schemes	3	75	70	3	3	3	-	-	-	-	-	-	-	-	3	-	-	-
CO-4	Identify and correct the errors in transmission	3	85	80	3	2	-	-	-	-	-	-	-	-	-	3	-	-	-
CO-5	Identify the guided and unguided transmission media	2	85	75	3	-	-	-	-	-	-	-	-	-	-	2	-	-	-
CO-6	Implement the various Routing Protocols	4	80	70	3	3	3	-	-	-	-	-	-	-	-	3	-	-	-

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

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*	*Hub, Repeaters, Switch*	**Unguided media: Radio waves**	**Correction Vs Detection**	**OSPF**
S-10	SLO-1	*Serial and Parallel Transmissions*	*Bridge*	**Microwaves**	*HDLC*	**EIGRP**
	SLO-2	**Addressing**	*Structure of Router*	**Infrared**	*PPP*	**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*	*Lab 9: EIGRP Configuration, Bandwidth, and Adjacencies*	**Lab 12:** *Multi-Area OSPF with Stub Areas and Authentication*	*Lab 15: Configuring Static and Default Routes*

Learning Resources	
1. *Behrouz A. Forouzan, "Data Communications and Networking" 5th ed., 2010* 2. *Bhushan Trivedi," Data Communication and Networks" 2016*	3. *William Stallings, Data and Computer Communications,9th ed., 2010* 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 (5%)	Practice (5%)	Theory (7.5%)	Practice (7.5%)	Theory (7.5%)	Practice (7.5%)	Theory (5%)	Practice (5%)	Theory (25%)	Practice (25%)
Level 1	Remember	15%									
Level 2	Understand	20%		10%	15%	25%		15%		15%	
Level 3	Apply	15%	20%	30%	20%	15%	20%	15%	20%	20%	20%
Level 4	Analyze		20%	10%	15%	10%	20%	10%	10%	15%	20%
Level 5	Evaluate		10%				10%	10%	20%		10%
Level 6	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

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