CO [As per Choice B (Effective free	MPUTER NET ased Credit System the academics	WORKS em (CBCS) scheme] year 2016 - 2017)			
(Effective fro	SEMESTER -	- V			
Subject Code	15CS52	IA Marks	20		
Number of Lecture Hours/Week	4	Exam Marks	80	30	
Total Number of Lecture Hours	50	Exam Hours	03		
	CREDITS –	04			
Course objectives: This course will	l enable students	to			
• Demonstration of application	n layer protocols		1		
<ul> <li>Discuss transport layer servi</li> <li>Evaluin routers, IP and Poul</li> </ul>	ting Algorithms	nd UDP and TCP proto	cols		
<ul> <li>Disseminate the Wireless an</li> </ul>	d Mobile Networ	ks covering IEEE 802	11 Stand	dard	
<ul> <li>Illustrate concepts of Multin</li> </ul>	nedia Networking	s. Security and Network	K Manag	gement	
Module – 1	2			 Teaching	
				Hours	
Application Layer: Principles of N	etwork Applicati	ons: Network Applicati	ion	<b>10 Hours</b>	
Architectures, Processes Commun	icating, Transpor	rt Services Available	to		
Applications, Transport Services I	Provided by the	Internet, Application-	Layer		
Protocols. The web and HITP: (	Overview of HI	IP, Non-persistent an			
Cookies Web Caching The Condit.	ional GET File T	Fransfer: FTP Comman	ds &		
Replies, Electronic Mail in the Inter	net: SMTP. Com	parison with HTTP. Ma	ail		
Message Format, Mail Access Proto	cols. DNS: The l	Internet's Directory Serv	vice:		
Services Provided by DNS, Overvie	w of How DNS	Works, DNS Records a	nd		
Messages, Peer-to-Peer Applicatio	ns: P2P File Dis	stribution, Distributed H	Iash		
Tables, Socket Programming: cr	reating Netwo	vork Applications:	Socket		
Programming with UDP, Socket Pro	ogramming with '	TCP.			
T1: Chap 2					
Module – 2	1		1 · 1	10.11	
<b>Iransport Layer</b> : Introduction a Petween Transport and Network I a	and Iransport-La	ayer Services: Relation	nship n tha	10 Hours	
Internet Multiplexing and Demultir	lexing: Connecti	onless Transport Layer II			
Segment Structure. UDP Checksu	m. Principles of	Reliable Data Transf	fer:		
Building a Reliable Data Transfer P	rotocol, Pipelined	d Reliable Data Transfe	r		
Protocols, Go-Back-N, Selective r	repeat, Connectio	on-Oriented Transport	TCP:		
The TCP Connection, TCP Segmen	t Structure, Roun	d-Trip Time Estimation	1 and		
Timeout, Reliable Data Transfer, Fl	ow Control, TCP	Connection Manageme	ent,		
Principles of Congestion Control:	The Causes and	d the Costs of Conge	stion,		
Approaches to Congestion Cont	rol, Network-as	sisted congestion-cont	rol		
example, ATM ABR Congestion co	ntrol, TCP Cong	estion Control: Fairness	3.		
11: Chap 3 Madula 2					
would be a start with the start of the start			<del></del>		
The Network laver What's had	le a Router?. In	nut Processing Switch	hing	10 Hours	
<b>The Network layer:</b> What's Insid	le a Router?: In euing Occur? Ro	put Processing, Switch uting control plane, IPv	hing, 6.A	10 Hours	
Output Processing, Where Does Que Brief foray into IP Security. Routing	le a Router?: In euing Occur? Ro g Algorithms: The	put Processing, Switch uting control plane, IPv e Link-State (LS) Routi	hing, 6,A ing	10 Hours	

Routing in the Internet, Intra-AS Routing in the Internet: RIP, Intra-AS Routing				
in the Internet: OSPF, Inter/AS Routing: BGP, Broadcast and Multicast Routing:				
Broadcast Routing Algorithms and Multicast.				
T1: Chap 4:4.3-4.7				
Module – 4				
Wireless and Mobile Networks: Cellular Internet Access: An Overview of	10 Hours			
Cellular Network Architecture, 3G Cellular Data Networks: Extending the				
Internet to Cellular subscribers, On to 4G:LTE, Mobility management: Principles,				
Addressing, Routing to a mobile node, Mobile IP, Managing mobility in cellular				
Networks, Routing calls to a Mobile user, Handoffs in GSM, Wireless and				
Mobility: Impact on Higher-layer protocols.				
T1: Chap: 6 : 6.4-6.8				
Module – 5				
Multimedia Networking: Properties of video, properties of Audio, Types of	10 Hours			
multimedia Network Applications, Streaming stored video: UDP Streaming,				
HTTP Streaming, Adaptive streaming and DASH, content distribution Networks,				
case studies: Netflix, You Tube and Kankan.				
Network Support for Multimedia: Dimensioning Best-Effort Networks,				
Providing Multiple Classes of Service, Diffserv, Per-Connection Quality-of-				
Service (QoS) Guarantees: Resource Reservation and Call Admission				
T1: Chap: 7: 7.1,7.2,7.5				
Course outcomes: The students should be able to:				
• Explain principles of application layer protocols				
• Recognize transport layer services and infer UDP and TCP protocols				
Classify routers, IP and Routing Algorithms in network layer				
• Understand the Wireless and Mobile Networks covering IEEE 802.11 Standard				
Describe Multimedia Networking and Network Management				
Question paper pattern:				
The question paper will have TEN questions.				
There will be TWO questions from each module.				
Each question will have questions covering all the topics under a module.				
The students will have to answer FIVE full questions, selecting ONE full question from				
each module.				
1 James E Kurses and Keith W Dess Computer Networking A Ten Dewn				
Approach Sixth edition Pearson 2017				
Reference Books.				
1 Behrouz A Forouzan Data and Communications and Networking Fifth Edition				
McGraw Hill. Indian Edition				
2. Larry L Peterson and Brusce S Davie, Computer Networks, fifth edition, ELSEVIER				
3. Andrew S Tanenbaum, Computer Networks, fifth edition, Pearson				
4. Mayank Dave, Computer Networks, Second edition, Cengage Learning				