

GANPAT UNIVERSITY									
FACULTY OF TECHNOLOGY									
Programme		Bachelor of Technology			Branch/Spec.		Computer Science & Engineering (BDA/CBA/MA)		
Semester		V			Version		1.0.0.1		
Effective from Academic Year			2018-19		Effective for the batch Admitted in			June 2016	
Subject code		2CSE502		Subject Name		Computer Networks			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	1	0	4	Theory	40	60	100
Hours	3	0	2	0	5	Practical	30	20	50
Pre-requisites:									
Basics of Communication System									
Learning Outcome:									
After successful completion of the course students should be able to									
<ul style="list-style-type: none"> Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies; Specify and identify deficiencies in existing protocols, and then go onto formulate new and better protocols; analyze, specify and design the topological and routing strategies for an IP based networking infrastructure Have a working knowledge of datagram and internet socket programming. 									
Theory syllabus									
Unit	Content								Hrs
1	Introduction to computer networks and Internet Understanding of network and Internet, The network edge, The network core, Understanding of Delay, Loss and Throughput in the packet switching network, protocols layers and their service model, History of the computer network								8
2	Application Layer Principles of computer applications, Web and HTTP, E-mail, DNS, Socket programming Topics with TCP and UDP								8
3	Transport Layer Introduction and transport layer services, Multiplexing and Demultiplexing, Connection less transport (UDP), Principles of reliable data transfer, Connection oriented transport (TCP), Congestion control								8
4	Network Layer Introduction, Virtual and Datagram networks, study of router, IP protocol and addressing in the Internet, Routing algorithms, Broadcast and Multicast routing								8
5	The Link layer and Local area networks Introduction and link layer services, error-detection and correction techniques, Multiple access protocols, addressing, Ethernet, switches								9

6	Introduction to IPV6 and SDN Problems with IPV4, Introduction to IPV6, IPV6 Features (Auto-configuration, QoS, Security, Mobility), Transition Plans, Limitations of Existing Networks, Need for SDN, SDN Architecture, and SDN Layers.	4
Self Study Topics		
Multiplexing and Demultiplexing, What's inside a router, ICMP		
Practical content		
<ul style="list-style-type: none"> • Introduction to Networking. • Perform packet capture (packet sniffing) and analyze network traffic with the Wireshark tool. • CRC Generation and Checking. • Bit Stuffing • Client- Server Application for Chat with TCP • Socket Programming for Day – Time Server with TCP. • Echo server application with UDP. • Configure application layer protocols: SMTP, FTP, DNS, SNMP, POP, HTTP • Introduction to Packet Tracer and configure router and switch • Create a Star topology using Packet Tracer. Also try other topologies • Implement RIP Protocol using Packet Tracer. Also implement BGP and OSPF. 		
Text Books		
1	Computer Networking- A Top-Down approach, 5 th edition, Kurose and Ross, Pearson	
2	Computer Networks (4 th edition), Andrew Tanenbaum, Prentice Hall	
Reference Books		
1	Computer Networks- A Top-Down approach, Behrouz Forouzan, McGraw Hill	
2	Computer Networking and the Internet (5 th edition), Fred Halsall, Addison Wesley	
3	Data Communications and Networking (4 th edition), Behrouz Forouzan, McGraw Hill	
4	TCP/IP Protocol Suite (3 rd edition), Behrouz Forouzan, McGraw Hill	