GANPAT UNIVERSITY									
FACULTY OF ENGINEERING AND TECHNOLOGY									
Programme	Bachelor of Technology					Branch/Spec.	Computer Science & Engineering		
Semester	V					Version	1.0.0.2		
Effective from Academic Year			2024-25			Effective for the batch Admitted in			June 2022
Subject code	2CSE502		Subject Name			COMPUTER NETWORK			
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

Objectives of the Course:

After successful completion of the course students should be able to

- Understand network architecture, protocol and media
- Analyse the topological and routing strategies for an IP based networking infrastructure
- Design the network for various scenarios
- Implement various network protocols

Theory syllabus

Unit	Content	Hrs
1	**Basics of Network** Understanding of network and Internet, The network edge, The network core, Understanding of Delay, Loss and Throughput in the packet switching network.	3
2	**Application Layer** Principles of computer applications, Web and HTTP, SMTP, POP, IMAP,, DNS	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, Socket Programming	10
4.	**Network Layer** Introduction, Virtual and Datagram networks, study of router, IP protocol and addressing in the Internet, Routing algorithms, Broadcast and Multicast routing , ICMP	11
5.	**Data Link Layer** Introduction and link layer services, error-detection and correction techniques, Multiple access protocols, Ethernet, switches, ATM, Frame Relay, ARP,RARP, BOOTP,DHCP, MPLS, PPP	10
6.	**Introduction to IPV6** Problems with IPV4, Introduction to IPV6, IPv6 addressing Scheme, Features (Auto-configuration, QoS, Security, Mobility), Transition Plans	3

Self-Study:

Multiplexing and Demultiplexing
What's inside a router
MAC address
SDN.

Practical content:

Practicals will be based on network designing, implementation of routing protocols, socket programming, error detection

MooC Course:

Course Name: Computer Networks and Internet Protocol
Link: https://onlinecourses.nptel.ac.in/noc21_cs18/

Text Books:

1.	Computer Networking- A Top-Down approach, Kurose and Ross, Pearson
2.	Computer Networks, Andrew Tanenbaum, Prentice Hall

Reference Books:

1.	Computer Networks- A Top-Down approach, BehrouzForouzan, McGraw Hill
2.	Computer Networking and the Internet,Fred Halsall, Addison Wesley.
3.	Data Communications and Networking, BehrouzForouzan, McGraw Hill
4.	TCP/IP Protocol Suite, BehrouzForouzan, McGraw Hill

Course Outcomes:

COs	Description
CO1	Understand network architecture, protocol and media
CO2	Analyse the topological and routing strategies for an IP based networking infrastructure
CO3	Design the network for various scenarios
CO4	Implement various network protocols

Mapping of CO and PO:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	3	1	2	2	3	1	1	2	2
CO2	1	2	2	2	2	1	3	1	2	2	2	1
CO3	3	2	2	2	3	2	2	2	2	3	1	2
CO4	3	2	2	2	3	2	2	2	2	3	1	2