
	Tulsiramji Gaikwad-Patil College of Engineering and Technology WardhaRoad,Nagpur-441108 NAAC Accredited (A+ Grade) An Autonomous Institute affiliated to RTMNU Nagpur		
Second Year (Semester-III) B.Tech. (CSE)			
Course Name:-Computer Network (BCS32321)			
Teaching Scheme		Examination Scheme	
Lectures	3Hrs/week	CT-1	15 Marks
Tutorial	-	CT-2	15 Marks
Total Credit	3	TA	10 Marks
		ESE	60 Marks
		Total	100 Marks
		Duration of ESE:03Hrs 00Min.	
Course Objective:			
1	To understand what computer networks are and how they help computers communicate.		
2	To learn how data moves from one computer to another step by step.		
3	To know about different network devices like routers and switches.		
4	To Understand how websites, emails, and internet services work.		
5	To learn basic ideas of keeping network data safe and secure.		
Course Contents			

Unit I	Basics of Networking Introduction to computer network, types of networks: LAN, MAN, WAN, Network shapes (topologies): Star, Bus, Ring, Mesh, Network devices: Hub, Switch, Router, OSI Model and TCP/IP Model (simple explanation)
Unit II	Sharing Data Between Two Computers (Data Link Layer) Computers talk using bits and frames, Common problems like errors in data, Simple ways to fix errors, Ethernet and Wi-Fi (basic working idea), MAC address (like computer name on a network)
Unit III	Sending Data Across Networks (Network Layer) IP address – like a home address for a computer, IPv4 and a quick idea about IPv6, How data finds its path (routing), Routers and how they work simply, Subnetting – dividing networks into small parts (basic idea)
Unit IV	Ensuring Reliable Delivery (Transport Layer) Two main types: TCP (safe delivery) and UDP (fast delivery), How computers connect to each other, Port numbers (like room numbers in a building), TCP vs UDP – what’s the difference?, Simple idea of how internet traffic is controlled
Unit V	Internet Services and Security (Application Layer) Common internet services: Email, Web, File Transfer, HTTP, DNS, FTP (basic usage), What is a website and how it loads?, Security: password, encryption, firewall, HTTPS and secure communication (basic idea)
Text Books	
T1	Data Communications and Networking : Behrouz A. Forouzan, McGraw-Hill Education
T2	Computer Networks, 5th Edition : Andrew S. Tanenbaum, David J. Wetherall, Pearson Education
T3	Data and Computer Communications, 10th Edition: William Stallings, Pearson Education.
Reference Books	

1	Computer Networking: A Top-Down Approach : Kurose, James F., and Keith W. Ross, Pearson Education
2	Data Communications and Computer Networks : Prakash C. Gupta, PHI Learning
3	Computer Communications and Networking Technologies : Michael A. Gallo, William M. Hancock, Cengage Learning
Useful Links	
1	https://nptel.ac.in/courses/106106091
2	https://onlinecourses.swayam2.ac.in/cec21_cs04/preview

	Course Outcomes	CL	Class Session
1	Describe the basic concepts, types, and models of computer networks.	1	9
2	Identify the functions of each layer in the OSI and TCP/IP models.	2	9
3	Illustrate how data is sent across a network using IP addresses and routing	3	9
4	Compare TCP and UDP protocols and explain how they manage data delivery.	2	9
5	Explain basic application services like web and email, and describe network security	2	9