GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Integrated MSc, 4th Semester
Branch: Information Technology
Subject Name: Computer Network
Subject Code: 1340503

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE(E)	PA (M)	PA (I)	ESE (V)	
3	0	2	4	70	30	20	30	150

Course Content:

Sr. No.	Content	Teaching Hours	(%)Module Weightage
1.	**Introduction:** Network applications, network hardware, network software, reference models: OSI, TCP/IP, Internet, Connection oriented network - X.25, frame relay. THE PHYSICAL LAYER: Theoretical basis for communication, guided transmission media, wireless transmission, the public switched telephone networks, Mobile telephone system.	8	20
2.	**The Data Link Layer:** Design issues, error detection and correction, elementary data link protocols, sliding window protocols, example data link protocols - HDLC, the data link layer in the internet. THE MEDIUM ACCESS SUBLAYER: Channel allocations problem, multiple access protocols, Ethernet, Data Link Layer switching, Wireless LAN, Broadband Wireless, Bluetooth	8	20
3.	**The Network Layer:** Network layer design issues, routing Algorithms, Congestion control algorithms, Internetworking, the network layer in the internet (IPv4 and IPv6), Quality of Service.	8	20
4.	**The Transport Layer:** Transport service, elements of transportprotocol, Simple Transport Protocol, Internet transport layer Protocols: UDP and TCP.	8	20
5.	**The Application Layer:** Domain name system, electronic mail, World Wide Web: architectural overview, dynamic web document and http. APPLICATION LAYER PROTOCOLS: Simple Network Management Protocol, File Transfer Protocol, Simple Mail Transfer Protocol, Telnet.	8	20

Reference Books:

1. Computer Networks, A. S. Tanenbaum, Latest Edition, Pearson Education/ PHI,New Delhi, India.
2. Data communication and Networking, Behrouz A. Forouzan, Latest Edition,McGraw-Hill, India.
3. Computer Networking: A top down approach, Kurose, Ross, Pearson Education, India.

Course Outcome:

After learning the course, the students should be able to:

No.	CO statement
CO-1	Understand computer network basics, network architecture, TCP/IP and OSI Reference models.
CO-2	Identify and understand various techniques and modes of transmission.
CO-3	Describe data link protocols, multi-channel access protocols and IEEE 802 Standards for LAN.
CO-4	Describe routing and congestion in network layer with routing algorithms and Classify IPV4 addressing scheme.
CO-5	Discuss the elements and protocols of transport layer f) Understand network Security and define various protocols such as FTP, HTTP, Telnet, DNS.