



# GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering

Subject Code: 3736101

Semester – III

Subject Name: Communication Networks

Type of course: Major Elective V

Prerequisite: NA

Rationale:

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE(E)	PA (M)	PA (V)	PA (I)		
3	0	0	3	70	30	0	0	100

Content:

Sr. No.	Content	Total Hrs
1	Introduction:-Network Architecture, Performance	
2	Connecting nodes:-Connecting links, Encoding, framing, Reliable transmission, Ethernet and Multiple access networks, Wireless networks	
3	Queuing models-For a) one or more servers b) with infinite and finite queue size c) Infinite population Internetworking:-Switching and bridging, IPv4, Addressing, Routing Protocols, Scale issues, Routers -Architecture, IPv6	
4	End-to-End Protocols:-Services, Multiplexing, De-multiplexing, UDP, TCP, RPC, RTP	
5	Congestion control and Resource Allocation-Issues, Queuing disciplines, TCP congestion control, Congestion Avoidance, QoS Applications:-Domain Name Resolution, File Transfer, Electronic Mail, WWW, Multimedia Applications	
6	Network monitoring – Packet sniffing tools such as Wireshark Simulations using NS2/OPNET	

Reference Books:

1. Larry L. Peterson, Bruce S. Deavie, “Computer Networks”, MK, 5th Edition
2. Aaron Kershenbaum, “Telecommunication Network Design Algorithms”, MGH, International Edition 1993
3. Vijay Ahuja, “Communications Network Design and Analysis of Computer Communication Networks”, MGH, International Editions
4. Douglas E. Comer, “Internetworking with TCP/IP”, Pearson Education, 6th Edition



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## Course Outcome:

After learning the course the students should be able to:

Sr. No.	CO statement	Marks % weightage
CO-1	Analyze protocols and algorithms, acknowledge tradeoffs and rationale	
CO-2	Use routing, transport protocols for the given networking scenario and application	
CO-3	Evaluate and develop small network applications	