

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. Embedded Systems (Branch Code - 54)

Year – I (Semester – I) (W.E.F. July 2013)

Subject: Advanced Computer Networking (715406) Institute Elective-I

Sr. No.	Course Content	Hours
1	Networking Concepts : Layered operation, Protocol Suites and Standards, OSI Model and TCP/IP Protocol Suite	3
2	Cell Relay and Asynchronous Transfer Mode(ATM) : ATM features, Protocol Architecture, ATM Cells – Structure, Generic Flow Control, Error Control, Traffic Control, ATM Services , ATM Adaptation Layers	6
3	IP Networks : Limitations of current IP Networks, Internet Protocol Version 6 (IPv6) features, IPv6 Extension Header,	4
4	Quality of Service in IP: Integrated Services Architecture (ISA), Weighted Fair Queuing (WFQ), Random Early detection (RED), Differentiated Services.	4
5	Multicast and Internetworking: The Multicast Backbone (MBONE), Multicast Protocols- Link State, Distance Vector etc., Multiprotocol Label switching (MPLS), Virtual Private Networks (VPNs) and Tunnels.	7
6	Multimedia Networking: Requirements on Internet. Real Time Streaming Protocol (RTSP). Voice over IP (VoIP), RTP, RTCP and SIP protocols	5
7	Ad hoc Networks: Introduction, Issues and Applications, Mobile Adhoc Networks	3
8	End-to-End Protocols : Transmission Control Protocol (TCP) and User Datagram Protocol (UDP), Issues and design goals of a Transport Layer Protocols for Wireless Networks	5
9	Wireless Network Standards : IEEE 802.11, Bluetooth, Zigbee, HiperLAN1, HiperLAN2, HomeRF, WiMax	5
10	Wireless/Wireline internetworking : Mobile IP, Wireless application protocol	2
11	Ad Hoc Routing Protocols: Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks, Table–Driven Routing Protocols, Source–Initiated On–Demand Approaches	6
12	Real Time communication: Basic concepts, applications, Real Time communication in LANs, Bounded access protocols for LAN, QoS Models, Multicast Routing, Resource Reservation Protocol, Traffic Rate control	6

Reference Books:

1. High-Speed Networks and Internet, Author: Stallings, Second Edition, Pearson Education.
2. Computer Networks-A Systems Approach, Author: Peterson and Davie, Third Edition, Elsevier (India)
3. Computer Networking, Author: Kurose and Ross, Third Edition, Pearson Education.
4. Ad hoc wireless networks, Author: C Sivaram Murthy, B. S. Manoj, PHI Pub
5. Wireless Networking, Author: Anurag Kumar, D. Manjunath, Joy Kuri, Elsevier Pub.