SEMESTER	2
Paper Number	MCMS 4202
Paper Title	Advanced Computer Networks
No. of credits	6
Theory / Composite	Theory
No. of periods assigned	Th: 5 Tut: 1
Name of faculty member(s)	
Course description / objectives	On completion of this course, the students will be able to: 1. advance their concepts of various types of LAN and connecting devices already learnt in undergraduate classes with new concepts like wireless LAN 2. gain detailed knowledge of current routing and congestion control algorithms used in internetworking 3. apply these algorithms in form of protocols as applicable to Internet and Transport layers in TCP/IP protocol stack 4. gain detailed knowledge of the protocols of application layer 5. learn in brief, advanced concepts like software defined networks
Syllabus	Network Architecture: Layered architecture and protocol hierarchy TCP/IP protocol suite, Services and important functions of each layer Local Area Networks: Aloha and Carrier Sense Protocols, Ethernet, Token Ring, FDDI Connecting Devices: Bridges, Backbone Networks, Virtual LAN Internetworking: Virtual Circuits and datagrams, IP addressing, IPv4 and IPv6 datagrams, Subnetting, CIDR Routing Algorithms: Shortest path Routing, Flooding, Distance Vector Routing, Link State Routing, Hierarchical Routing, Broadcast and Multicast Routing, Routing for mobile hosts Routing Protocols: ARP, RARP, ICMP, RIP, OSPF, BGP Process to Process Delivery: TCP and UDP Congestion Control and Quality of Service: Congestion control Techniques, Congestion control in TCP. Techniques for improving the QoS Application Layer: An overall idea of socket and DNS; Detailed working principles of two application layer protocols - SNMP and SMTP Wireless LAN: IEEE Standards for Wireless Networks Wireless Networks Applications, Types of Wireless Networks, Benefits of Wireless Networks, Bluetooth – Architecture and Protocol Stack Software Defined Networks (SDN): Definition, Layers and Applications
Reading/Reference Lists	1. B.Forouzan – Data Communication and Networking.TMH 2. A Tanenbaum – Computer Networks, PHI 3. Computer Networks by Behrouz A. Forouzan 4. TCP/IP Protocol Suite by Behrouz A. Forouzan
Evaluation	Total – 100 CIA – 20 Semester Examination – 80