Name of Department:- Computer Science and Engineering

1. Subject Code: TCS 703 Course Title: **Computer Networks-II**
2. Contact Hours: L: 3 T: - P: -
3. Semester: VII

4. Pre-requisite: TCS 604

5. Course Outcomes: After completion of the course students will be able to

1. Analyze Global and Centralized Routing protocols and utilize tools (such as NS2) to examine routing protocols of LS and DV types
2. Evaluate and select the appropriate technology to meet Data Link Layer requirements
3. Specify the devices, components and technologies to build a cost-effective LAN
4. Appreciate issues for supporting real time and multimedia traffic over public network
5. Describe the key benefited of SDN, in particular those benefits brought about by the separation of data and control planes.
6. Implement client server applications with TCP/UDP Socket Programming

6. Detailed Syllabus

UNIT	CONTENTS	Contact Hrs
Unit - I	Routing Algorithms: Introduction, global vs decentralized routing, The Link State(LS) Routing Algorithm, The Distance Vector (DV) Routing Algorithm, Hierarchical Routing, Routing in the Internet: RIP, OSPF, BGP; Introduction to Broadcast and Multicast Routing	**9**
Unit - II	Link Layer and Local Area Networks: Introduction to Link Layer and its services, Where Link Layer is implemented?, Error detection and correction techniques: Parity checks, Checksumming, CRC; Multiple Access protocols: Channel Partitioning, Random Access (Slotted Aloha, Aloha, CSMA), Taking Turns; Link Layer Addressing: MAC addresses, ARP, Ethernet, CSMA/CD, Ethernet Technologies, Link Layer Switches, Switches vs Routers, VLANS	**10**
Unit – III	Multimedia Networking: Introduction, Streaming Stored Audio and Video, Real Time Streaming Protocol(RTSP), Making the Best of the Best Effort Services, Protocols for Real Time Interactive Applications: RTP, RTCP, SIP, H.323; Providing multiple classes of service.	**9**
Unit – IV	Generalized forwarding and SDN Match , Action, Open flow, SDN Control Plane , SDN controller and SDN control Application , Open flow protocol, Data and control plane Interaction , SDN : PAST and FUTURE.	**9**
Unit – V	Network Programming: Sockets-Address structures, TCP sockets, creating sockets, bind, listen, accept, fork and exec function, close function; TCP client server: Echo server, normal startup, terminate and signal handling, server process termination, crashing and rebooting of server, host shutdown; Elementary UDP sockets: UDP echo server, lack of flow control with UDP	**8**
	Total	**45**

Text Book:

1. “Computer Networking A Top Down Approach, Kurose and Ross”, 5th edition, Pearson

Reference Book:

1. Douglas E. Comer, Pearson ,“Internetworking with TCP/IP Volume 1 and 2 “,; 6 edition