II Year MCA I Semester	L	T	P	To	C
	3	1	-	4	4

MC205 COMPUTER NETWORKS

Objectives of the Course:

- *To focus on imparting knowledge about the aspects of data communication and computer network systems with the required basic principles behind them.*
- *To provide enough knowledge about the OSI model and TCP/IP model.*
- *To give students a good foundation covering the physical layer, data link layer, network layer and the transport layer.*

UNIT - I **(14 Hrs)**

Introduction to Computer Networks: Introduction to Data Communication System, Basic Concepts, Network Advantages and Applications, Network Hardware, Network Software, Types of Networks – LAN, MAN, WAN.

Layers : OSI Model, TCP/IP Model, Examples of Networks- Arpanet, Internet.

UNIT - II **(12 Hrs)**

Physical Layer: Introduction to Telecommunications, Functions of Physical Layer- Signals, Encoding, Transmission of Digital data – Interfaces and Modems, Transmission Media- Guided Media, Unguided Media, Introduction to ISDN, ATM, SONET.

UNIT - III **(15 Hrs)**

Data link layer: Design Issues, Framing, Error Detection and Correction Techniques, Elementary Protocols- Stop and Wait, Sliding Window, Example of Data link layer Protocols.

Medium Access Sub Layer : Channel Allocation Problem, Multiple Access Protocols-ALOHA,IEEE 802 project – 802.1, 802.2,802.3, 802.4,802.5, Wireless LANS, Bridges.

UNIT - IV **(12 Hrs)**

Network Layer: Network Layer Design Issues**,** Virtual circuit and Datagram subnets, Routing algorithms- , Congestion Control algorithms-, Internetworking, The Network layer in the Internet – IP, IP Addresses, IP Subnet masking, ICMP, ARP,RARP.

UNIT - V **(15 Hrs)**

Transport Layer and Application Layer: Elements of Transport Layer, Connection management, TCP and UDP protocols;

Application Layer – Network Security, Domain name system, SNMP, Electronic Mail; the World WEB, Multi Media.

Text Books:

1. Data Communications and Networking – Behrouz A. Forouzan. 4/e Edition TMH.
2. Computer Networks — Andrew S Tanenbaum,4th Edition. Pearson Education/PHI

Reference Books:

1. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education.
2. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson.