

## **Course No: MCA-3T4**

### **Course Title : Computer Networks – Protocols & Programming**

#### **Unit I**

Goals and applications of networks.LAN, MAN & WAN architectures.Concept of WAN subnet.Overview of existing networks. OSI Reference Model Architecture, TCP/IP Model and their comparison.

#### **Unit II**

Internetworking concept and architectural model.Connection-oriented and connection-less approaches. Concept of Autonomous systems and Internetwork Routing. Classful IP addresses. Subnetting, IP Multicasting. Internet Protocol(IP) : connectionless delivery of datagrams(MTU, fragmentation, reassembly).

#### **Unit III**

Internet control protocols: ICMP, ARP and RARP. Routing algorithms: Interior(OSPF), Exterior(BGP). Transport Layer : UDP and TCP concepts. Socket API for Network Programming. Network Byte Ordering.

#### **Unit IV**

Client-Server application development using TCP & UDP sockets. Basic Server Architectures.Network Security: Firewalls and their components; Encryption techniques and examples of encryption standards.

#### **Reference Books:**

- 1.AndrewTanenbaum, "Computer Networks",4<sup>th</sup> Edition by Pearson.
- 2.Douglas Comer, "Internetworking with TCP/IP, Volume 1", Pearson.
- 3.W.RichardStevens,"UNIX Network Programming",Pearson.
- 4.Maufer, "IP Fundamentals", Pearson.
5. Douglas Comer, "Client-Server Programming with TCP/IP, Volume 3",Pearson.