**Elective I: TCP & IP syllabus**

**Unit I:** Network architecture-Standards, TCP/IP Model Overview, Networking

Technologies: LANS, WANS, Connecting Devices. Internetworking concept,

Internet Backbones, NAP, ISPs, RFCs and Internet Standards.

**Unit II**: Classful Internet address, CIDR-Subnetting and Supernetting, ARP,

RARP, OOTP, DHCP.

**Unit III**: IP Datagram-IP Package-IP forwarding and routing algorithms,

computing paths, RIPOSPF, ICMP, IGMP.

**Unit IV**: TCP header, services, Connection establishment and termination,

Interactive data flow, Bulk data flow, Flow control and Retransmission, TCP

timers, Urgent Data processing, Congestion control, Extension headers.

**Unit V**: Switching technology, MPLS fundamentals, signaling protocols, LDP, IP

traffic engineering, ECMP, SBR, Routing extensions for traffic engineering, Traffic

engineering limitations and future developments.

**Unit VI**: IP security protocol-IPv6 addresses, Packet format, Multicast, Anycast,

ICMPv6, Interoperation between IPv4 and IPv6-QoS, Auto configuration.

**Text Books**:

1. TCP/IP Network Administration, Craig Haut, 3rd Edition, Shroff

Publications, 2002.

2. Internetworking with TCP/IP - Principles, Protocols, and Architecture,

Douglas E. Comer, 5th edition Volume-1, Prentice Hall, 2006.

3. The Internet and its Protocols- A Comparative approach, Adrian Farrel,

Morgan Kaufmann, 2004.

4. TCP/IP Illustrated - the Protocols, W. Richard Stevens, Volume I, Pearson

Education, 2003.

5. TCP/IP Protocol Suite, Behrouz A. Forouzan, 3rd edition, Tata McGraw Hill,

2006.

**Reference Books:**

1. IPv6 Theory, Protocol and Practice, Pete Loshin, 2nd edition, Morgan

Kaufmann, 2003.

2. Internetworking TCP/IP, Comer D.E and Stevens D.L, Volume III, Prentice

Hall of India, 1997.