CORE COURSE XII: DATA COMMUNICATION AND COMPUTER NETWORKING

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
6	6B12CSC	4	4	3

COURSE OUTCOME

CO1: Understand state-of-the-art in network protocols, architectures and application.
CO2: To acquire knowledge about different computer networks
CO3: To understand the use of layer architecture for networking systems.

Unit I:

Introduction to data communication, important elements /components of data communication. Transmission media- Guided media, Unguided media. Synchronous / Asynchronous data transmission.Line configuration – Simplex, Half duplex, Duplex.Network topologies – star, Bus, ring, Mesh. Computer networks, Use, network hardware, network structure- point to point connection, multicast, broadcast, classification of networks-LAN, WAN, MAN.

(18 Hrs)

Unit II:

Reference models, the OSI reference model, TCP / IP reference model. Comparison between OSI and TCP / Ip models. Data Link Layer, Design issues, Services to network layer, Framing- character count, character stuffing, bit stuffing, physical layer coding violation. Error control, flow control, Elementary data link protocols- unrestricted simplex protocol, simplex stop and wait protocol, simplex protocol for a noisy channel.

(18 Hrs)

Unit III:

Network layer, design issues, services to the transport layer, routing algorithms- adaptive, non-adaptive algorithms, optimality principle, dijkstras shortest path routing algorithm, flow-based routing, hierarchical routing, congestion control algorithms–the leaky bucket algorithm, the token bucket algorithm.

(18 Hrs)

Unit IV:

Transport layer, design issues, connection management-addressing, establishing and releasing connection, transport layer protocols- TCP, UDP

Application layer – Basic Idea of telnet, ftp, http, smtp, pop3.

(18 Hrs)

Books for Study:

1. Computer Networks, Andrew S. Tanenbaum& David J. Wetherall, Pearson.

Books for Reference:

1. Data Communication and Networking, Behrouz A. Forouzan, McGraw Hill Education.
2. Achyut S. Godbole and AtulKahate, Data communication and Networks, 2nd Ed, McGraw Hill
3. Computer Networking: A Top-Down Approach, Kurose James F. and Ross Keith W., Pearson.
4. R. S. Rajesh, K. S. Easwara Kumar and R. Balasubramanian, Computer Networks – Fundamentals and Applications, Vikas Publishing House.

Marks including choice:

Unit	Marks
1	15
2	15
3	15
4	15