BCA - SEMESTER V

CA5CRT14 : Computer Networks (Core)

Theory:3 hrs. per week

Credits:4

Unit 1: (10 hrs.)

Introduction to Networks, Data and signals-analog and digital, periodic analog signals, digital signals, bit rate, baud rate, bandwidth. Transmission impairments- attenuation, distortion and noise.

Data communication protocols and standards, Network models - OSI model-layers and their functions. TCP/IP protocol suite.

Unit 2: (10 hrs.)

Bandwidth utilization Multiplexing: FDM, TDM, spread spectrum.

Transmission Media- guided media and unguided media.

Switching: message, Circuit and packet switched networks, datagram networks, virtual- circuit networks.

Unit 3: (12 hrs.)

Data link layer: Error Detection and Correction, Framing, flow and error control, Protocols - Noiseless channels (Simplest, Stop and Wait) and Noisy channels (Stop and Wait and Piggy Backing).

Multiple Access Protocols. Random Access-ALOHA, CSMA. Wired LANs-IEEE standards, wireless LANs-Bluetooth, Cellular Telephony

Unit 4: (12 hrs.)

Network layer and Transport layer: Repeaters, Bridges, Gateways and routers. Logical addressing – IPV4 and IPV6 addressing, Internet protocol - IPV4 and IPV6. Connectionless and Connection Oriented Services: UDP and TCP. Congestion Control, Quality of Service.

Unit 5: (10 hrs.)

Application layer: HTTP, FTP, SMTP, DNS. Network security: Common Threats- Firewalls (advantages and disadvantages), Cryptography.

Book of study:

1. B. A. Forouzan - Data communication and Networking, Fourth edition-,TMH
2. Andrew S Tanenbaum - Computer Networks ,Fourth Edition, Prentice Hall of India.