Subject Code

:   **06CS64**

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

PART - A

Unit - 1

Packet-Switching Networks – 1: Network services and internal network operations; Packet network topology; Datagrams and virtual circuits; Routing in packet networks; Shortest-path routing; ATM networks.

□□**6 Hours**

unit - 2

Packet-SwitchingNetworks–2, TCP / IP – 1: Traffic anagement at the packet level; Traffic management at the flow level; Traffic management at the flow-aggregate level. The TCP / IP

architecture; The Internet protocol.

6 Hours

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unit - 3

TCP / **IP – 2:** IPv6; User datagram protocol; Transmission control protocol; Internet routing protocols; Multicast routing; DHCP, NAT, and Mobile IP.

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7 Hours

unit - 4

ATM Networks: Why ATM? BISDN reference model; ATM layer; ATM adaptation layer; ATM signaling; PNNI routing; Classical IP over ATM.

7 Hours

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PART - B

Unit - 5

Network Management, Security: Network management overview; SNMP; Structure of Management information; MIB; Remote network monitoring. Security and cryptographic algorithms; Security protocols; Cryptographic algorithms.

6 Hours

unit - 6

QoS, Resource Allocation, VPNs, Tunneling, Overlay Networks: Overview of QOS; Integrated services QoS; Differentiated services QoS; Resource allocation.Virtual Private Networks; Multiprotocol Label switching; Overlay networks.

7Hours

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unit - 7

Compression of Digital Voice and Video, VoIP, Multimedia Networking:□ Overview of data compression; Digital voice and compression; Still images and JPEG compression; Moving images and MPEG compression; Limits of compression with loss; Compression methods without loss; Case Study: FAX compression for transmission. Overview of IP telephony; VoIP signaling protocols; Real-Time media transport protocols; Distributed multimedia networking; SCTP.

7 Hours

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unit - 8

Mobile Ad-Hoc Networks, Wireless sensor Networks: Overview of wireless adhoc networks; Routing in adhoc networks; Routing protocols for adhoc networks; security of adhoc networks. Sensor networks and protocol structures; Communication energy model; Clustering protocols; Routing protocols; Zigbee technology and IEEE 802.15.4

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6 Hours

Text Books:

1. **Communication   Networks –Fundamental Concepts and Key Architectures -** Alberto   Leon-Garcia and Indra Widjaja, 2
nd
Edition, Tata McGraw-Hill,   2004.

2. **Computer   and Communication Networks -** Nader F. Mir, Pearson Education, 2007.

References Books:

1   **Data Communications and Networking -** Behrouz A. Forouzan, 4th   Edition, Tata McGraw-Hill, 2006.

2	**Data and Computer Communication -** William Stallings, 8th Edition, Pearson Education, 2007.

3	**Computer Networks – A Systems Approach -** Larry L. Peterson and Bruce S. David, 4th Edition, Elsevier, 2007.

4	**Introduction to Data Communications and Networking -** Wayne Tomasi, Pearson Education, 2005.