SYLLABUS

DATA COMMUNICATIONS AND COMPUTER NETWORKS (23EC511)

Course Code	Category	Hours/ Week			Credits	Maximum Marks		
		L	T	P		CIE	SEE	TOTAL
23EC511	ProfessionalCore	3	1	0	4	40	60	100
Contact Classes 48	Tutorial Classes: Nil	Practical Classes: -				Total Classes: 48		

Course Objectives

- Explore basic concepts of data communication
- Introduce students to TCP/IP and OSI models along with their merits and demerits.
- Explore in detail services offered by various layers of OSI Model.
- Understand link layer protocols, UDP, TCP and application layer protocols.

Course Outcomes

- Understand and explore the basics of communication and computer networks
- Understand data link, network and transport layers concepts of a computer network.
- Understand the working of application layer protocols.

UNIT - I

Data Communications:

Components – Direction of Data flow – Networks – Components and Categories – Types of Connections – Topologies –Protocols and Standards – ISO / OSI model, Example Networks such as ATM, Frame Relay, ISDN

Physical layer:

Transmission modes, Multiplexing, Transmission Media, Switching, Circuit Switched Networks, Datagram Networks, Virtual Circuit Networks

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UNIT - II

Data link layer:

Introduction, Framing, and Error – Detection and Correction – Parity – LRC – CRC Hamming code, Flow and Error Control, Noiseless Channels, Noisy Channels, HDLC, Point to Point Protocols. 111 Medium Access sub layer: ALOHA, CSMA/CD, LAN –

Ethernet IEEE 802.3, IEEE 802.5 – IEEE 802.11, Random access, Controlled access, Channelization.

UNIT - III

Network Layer: Logical Addressing, Internetworking, Tunneling, Address mapping, ICMP, IGMP, Forwarding, Uni-Cast Routing Protocols, Multicast Routing Protocols.

UNIT - IV

Transport Layer:

Process to Process Delivery, UDP and TCP protocols, Data Traffic, Congestion, Congestion Control, QoS, Integrated Services, Differentiated Services, QoS in Switched Networks.

UNIT - V

Application Layer –Domain name space, DNS in Internet, Electronic Mail, SMTP, FTP, WWW, HTTP, SNMP.

TEXT BOOK:

1. Data Communications and Networking, Behrouz A. Forouzan, Fourth Edition TMH.

REFERENCE BOOKS:

1. Computer Networks, Andrew S Tanenbaum, 6th Edition. Pearson Education.
2. Computer Networking: A Top-Down Approach Featuring the Internet. James F. Kurose & Keith W. Ross, 3 rd Edition, Pearson Education
3. Data communications and Computer Networks, P.C Gupta, PHI.
4. An Engineering Approach to Computer Networks, S. Keshav, 2nd Edition, Pearson Education.

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