DATA COMMUNICATION AND COMPUTER NETWORKING

Paper Code	**ECS-604**
Course Credits	4
Lectures/ Week	3
Tutorials/ Week	1
Course description	**UNIT- I DATA COMMUNICATION AND NETWORKING** Data communication and networking; Communication model, Internet, OSI reference model, Concept and terminology: Analog and Digital data transmission, Transmission impairments, Channel capacity, Guided/Unguided transmission Media, Line Coding; Digital Modulation, Types of errors; Error Detection **UNIT- II DATA LINK CONTROL PROTOCOLS** Flow control, Stop and Wait Automatic Repeat Request (ARQ) Protocol, Go-Back-N ARQ Protocol, Selective Reject ARQ Protocol, Piggybacking, HDLC Protocol, HDLC frame format, Bit Stuffing **UNIT- III SWITCHING PRINCIPLES AND ROUTING PROTCOLS** Switched Communication networks, Circuit switching, Message switching and Packet switching principles, Datagram and virtual circuit switching, Routing in packet switched networks; Least cost Algorithms: Bellmann Ford Algorithm, Dijkstra Algorithm **UNIT-IV MEDIUM ACCESS CONTROL AND LOCAL AREA NETWORKS** Background; Topologies and Transmission Media; Random Access medium access control (MAC), LAN Protocol Architecture; Aloha and Slotted Aloha, Carrier Sensing Multiple Access/Collision Detection (CSMA/CD), Ethernet frame format, Bridges

UNIT-V INTERNET PROTOCOLS

TCP/IP protocol architecture, Internet protocols, IP addressing, IPv-4 and IPv-6, Address mapping, TCP and UDP, Electronic mail, SMTP, MIME and DNS

Pre-requisite Basic knowledge of computer and internet

Course/Paper:

Text Book: B.A. Forouzan , "Data Communication and Networking", Tata McGraw Hill, India.

Reference Books:

1. William Stallings, Data and Computer Communications, Eighth Edition (2007), Pearson Education Low Price edition

2.D.E. Comer, "Computer Networks and Internets", Pearson Education India.

Course Outcomes:

CO 1: An understanding of the basic concept of data communication and computer networking.

CO 2: A thorough understanding of the flow and error control protocols used in data transmission.

CO 3: A understanding of the concept of switching and routing in switched network.

CO 4: A thorough understanding of MAC layer and protocols related to it.

CO 5: A familiarity with the concept of internet protocols and IP addressing.

Computer usage/ Software required: Basic computer