18CSOE03	COMPUTER NETWORKS	L	T	P	C
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Course Objectives:

1. To study the concepts of data communications and functions of different ISO/OSI reference architecture
2. To understand the error detection and correction methods and also the types of LAN
3. To study the concepts of subnetting and routing mechanisms
4. To understand the different types of protocols and congestion control
5. To study the application protocols and network security

UNIT I	DATA COMMUNICATIONS AND PHYSICAL LAYER	9	+	0

Data Communication; Networks- Physical Structures (Types of Connections, Physical Topology), Categories of Networks, Interconnection of Networks: Internetwork; Protocols and Standards; Network Models-The OSI Model,Layers in the OSI Model,Addressing;Transmission media-Guided Media,Unguided Media.

UNIT II	DATA LINK LAYER	9	+	0

Introduction-Types of errors,Redundancy,Detection versus Correction -Error Detection and Correction (VRC,LRC,CRC,Checksum,Hamming Code);Data link Control- Flow Control (Stop-and-Wait,Sliding Window),Error Control (Automatic Repeat Request, Stop-and-wait ARQ,Sliding Window ARQ); Local Area Networks- Ethernet, Token Bus, Token Ring, FDDI.

UNIT III	NETWORK LAYER	9	+	0

Network Layer services-Packet Switching-Network Layer Performance-IPv4 addresses-IPv6 addressing-Subnetting-Bridges-Gateways- Routers-Routing Algorithm-Distance Vector Routing, Link State Routing.

UNIT IV	TRANSPORT LAYER	9	+	0

Duties of the Transport layer-User Datagram Protocol-Transmission Control Protocol- Congestion Control and Quality of Service-Congestion, Congestion Control, Quality of Service, Techniques to improve QoS.

UNIT V	PRESENTATION LAYER AND APPLICATION LAYER	9	+	0

Translation, Encryption/Decryption, Authentication, Data Compression; Domain Name System – FTP-SMTP-HTTP- World Wide Web.

Total (L+T)= 45 Periods

Course Outcomes:		
Upon completion of this course, the students will be able to:		
CO1	:	Classify the fundamentals of data communications and functions of layered architecture
CO2	:	Apply the error detection and correction methods and also identify the different network technologies
CO3	:	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and routing technologies
CO4	:	Illustrate the transport layer principles and reliable data transfer using protocols
CO5	:	Analyze the application layer protocols and also the use of network security

Text Books:	
1.	Behrouz A.Ferouzan, "Data Communications and Networking", 4th Edition, Tata McGraw-Hill, 2007

Reference Books:	
1.	Andrew S. Tanenbaum, "Computer networks "PHI, 4th edition 2008
2.	William Stallings," Data and computer communications", 10th edition,PHI, 2012
3.	Douglas E. comer," Internetworking with TCP/IP-Volume-I", 6th edition,PHI, 2008