S. No.	Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
								Sessional	Final Exam	Total
3	ECE-603	Computer Networks	ESC	4	3	1	0	50	100	150

Course Outcomes:

At the end of the course the student will be able to:	
CO1	Articulate the fundamental concepts in computer networks and justify their layered implementation.
CO2	Appreciate the challenges involved and available protocols for facilitating low-level data communication.
CO3	Analyze the design issues in ensuring error free data construction, deconstruction and transmission across devices.
CO4	Justify the application of appropriate routing algorithms in different scenarios based on through Understanding of prevalent routing algorithms.
CO5	Articulate the role of higher network layers in the OSI models and the working of common network Applications.

Detailed   Syllabus
Section A

Unit 1: Introduction to Data Communication-Data Communication system, synchronous and asynchronous systems, serial and parallel system, Computer network and uses, categories of computer networks, protocol and standards, Dataflow-simplex, half-duplex, full-duplex, computer, Network Topologies, Reference Model-OSI and TCP/IP reference model, their comparison and critique.

(10 Hrs)

Unit 2: Physical Layer: Data Transmission-Digital to Digital Conversion-Line Coding Scheme, Transmission Media, RS-232 Interface, Switching mechanisms and Comparison –circuit, packet, message, Modem and its types.

(8 Hrs)

Unit 3: Data Link Layer: Error Detection and Correction, Flow Control-Elements of data link Protocols, Multiple Access Protocol-Random & controlled access protocols-ALOHA, CSMA, IEEE standards-802.3, 802.4, 802.5.

(10 Hrs)

Section B

Unit 4: Network Layer: Routing Algorithms–the optimality principle, shortest path algorithm, flooding, distance vector routing, link state routing and hierarchical routing, Sliding window protocol Congestion Control- principles prevention policies, Techniques to improve QoS, IP addressing, IPV4 and IPV6, Subnetting.

(10 Hrs)

Unit 5: Transport & Application Layer: Services, Primitives, Issues, elements of transport protocol, Introduction to TCP and UDP, Design Issues, FTP, DNS, E-Mail, SMTP, HTTP, WWW and Firewalls.

(8 Hrs)

Text Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Computer Networking with Internet Protocols and Technology	W. Stallings	Pearson Education	2nd (2009)
2	Data Communication and Networking	Behrouz A. Forouzan	McGraw-Hill	4th (2007)

Reference Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Computer Networking: A Top-DownApproach Featuring the Internet	Kurose & Ross	Pearson Education	7th (2017)
2	Computer Networks and Internets with Internet Applications	Coumar & Douglas	Pearson	4th (2014)