Course Type	Course Code	Name of Course	L	T	P	Credit
DE	NECD501	Computer Communication Networks	3	0	0	3

Course Objective

This course examines the science underpinning computer communications, such as thebasic architectural principles of computer networking and specifically how the Internetworks today. Covered topics include data representation, how errors in transmission canbe detected and dealt with, the way information is routed over a large network, howcongestion can be avoided, aspects of network security.

Learning Outcomes

- Understanding of the most important principles of how computer communication works
- Understanding of protocols and ability to see it in an overall context of communication and the key securityissues of computer communication
- Be able to explain the most important standards inthe field of computer communication
- Assess different solutions for computer networks
- Be able to implement a simple object-orienteddistributed system.

Module No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Computer Communication Networks - overview and introduction, The ISO reference Model, Network Topologies.	8	• To understand the basic concepts of communication and networks. • To understand the layered architecture in data networks
2	Basics of queuing models, Connectivity and Delay Analysis	4	• To get the exposure of queueing in data communication with analysis in the connectivity and delays
3	The Physical Layer, Data Link Layer Protocol with Case Studies, Point-to-Point Networks.	8	• To get the exposure of protocols in lower layers in data communication
4	Routing and Flow Control, Packet Communication Technology, Packet Broadcasting, Terrestrial Networks, Local Area Networks, Mixed Media and Large-Scale Integrated Networks.	6	• To understand the connectivity and data transfer in different networks with scale of integration
5	Transport and Session Layers, Presentation Layer Protocols and Data Link Layer Concepts of Distributed Systems, Computer Networks and a Distributed System.	9	• To get the exposure of protocols in upper layers in data communication • To understand the concept of distributed networks and the inter connectivity among different networks
6	Fibre Optic Network, Examples and Case Studies.	7	• To understand the concept of backbone networks
	Total	**42**	

Text book:

1. Nader F. Mir, "Computer and Communication Networks", Prentice Hall, Dec 2014.

Reference books:

1. Kurose, Ross: Computer Networking - A Top-Down Approach 5th edition, Pearson (2010).
2. M Barry Dumas, Morris Schwartz, "Principles ofComputer Networks and Communications", Pearson Education, January 2012.
3. William Stallings, "Data and Computer Communication", 10th Edition, Pearson Education, 2013.
4. ArshdeepBahga and Vijay Madisetti "Internet of Things: A Hands-on Approach", Universities Press, 2014