

COURSE CODE	COURSE TITLE	L	T	P	C
1151CS305	COMPUTER NETWORKS LAB	0	0	2	1

**Course Category:** Program Core

**A. Preamble :**

This course is to provide students with an overview of the concepts and fundamentals of computer networks. Topics to be covered include: data communication concepts and techniques in a layered network architecture, communications switching and routing, types of communication, network congestion, network topologies, network configuration and management, network model components, layered network models (OSI reference model, TCP/IP networking architecture) and their protocols, various types of networks (LAN, MAN, WAN and Wireless networks) and their protocols.

**B. Prerequisite Courses:**

Sl. No	Course Code	Course Name
1	1150CS201	Problem Solving Using C
2	1151CS102	Data Structures
3	1151CS111	Computer Networks

**C. Related Courses:**

Sl. No	Course Code	Course Name
1	1151CS304	Operating System Lab
2	1151CS303	Database Management system Lab
3	1151CS302	Java Programming Lab
4	115CS301	Data Structures Lab
5	1156CS601	Mini Project
6	1156CS701	Major Project

**D. Course Outcomes :**

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Identify the different types of network topologies and protocols.	S3
CO2	Illustrate the various keying techniques, digital data communication techniques and its standards.	S3
CO3	Apply with contemporary issues in networking technologies and Tools.	S3
CO4	Demonstrate the various concepts of network topologies, components and categories of networks with Routing Algorithms.	S3
CO5	Make use of packet /file transmission between nodes.	S3

### E. Correlation of COs with POs :

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	H	M	L	M	L	L		M		L		L		M	
CO2	H	H	L	M	L	L		M					H	M	
CO3	H	H	H	M	H		M	M							M
CO4	M	M	M	M	L	L	M	M	M				L		L
CO5	H	L	M	M			H	M		H		M		M	H

H- High; M-Medium; L-Low

### F. Course Content :

#### LIST OF EXPERIMENTS:

1. a) Study of different types of network cables and practically implement cross wired cable and straight through cable using clamping tool.  
b) Study of network devices and network IP in detail.
2. Study of network IP and practically connect the computers in LAN
3. a) Study of basic network command and network configuration commands.  
b) Configure a network topology using packet tracer software.
4. Configure a network using Distance vector/Link state routing protocol.
5. Simulation of sliding window protocol.
6. Simulation of ARP and RARP.
7. Implementation of File Transfer Protocol
8. Half Duplex Chat Using UDP
9. Full Duplex Chat Using TCP/IP
10. Simulate the packet transmission over Ethernet LAN and its CSMA/CD protocol using NS2.

### G. Learning Resources

#### Text Books:

1. BehrouzForouzan, "Introduction to Data Communications and Networking", Tata McGraw Hill, 5th Edition, 2015.
2. Stallings, "Data and Computer Communications", PHI, 10th Edition, 2015.

#### Reference:

1. William Schweder, "Data Communication", McGraw Hill, 1987.
2. Tanenbaum, "Computer Networks", PHI, 5rd Edition, 2011

#### Online Resources

1. <http://www.cse.iitk.ac.in/users/dheeraj/cs425/>
2. [http://www.tcpipguide.com/free/t\\_OSIRferenceModelLayers.htm](http://www.tcpipguide.com/free/t_OSIRferenceModelLayers.htm)
3. <http://iit.qau.edu.pk/books/Data%20Communications%20and%20Networking%20By%20Behrouz%20A.Forouzan.pdf>
4. <http://www.networkdictionary.com/protocols/osimodel.php>