ANURAG ENGINEERING COLLEGE

(An Autonomous Institution)

III Year B.Tech. CSE - I Sem

L	T	P	C
0	0	2	1

(CS504PC)COMPUTER NETWORKS LAB

Course Objectives:

The objectives of this course are to provide:

- To understand the working principle of various communication protocols.
- To understand the network simulator environment and visualize a network topology andobserve its performance
- To analyze the traffic flow and the contents of protocol frames
- To analyze data encryption and decryption algorithms.
- To acquire the knowledge on Wireshark to capture and display real-time details of network traffic.

List of Experiments

1. Implement the data link layer framing methods such as character, character-stuffing and bitstuffing.
2. Write a program to compute CRC code for the polynomials CRC-12, CRC-16 and CRC CCIP
3. Develop a simple data link layer that performs the flow control using the sliding window protocol, and loss recovery using the Go-Back-N mechanism.
4. Implement Dijsktra's algorithm to compute the shortest path through a network
5. Take an example subnet of hosts and obtain a broadcast tree for the subnet.
6. Implement distance vector routing algorithm for obtaining routing tables at each node.
7. Implement data encryption and data decryption
8. Write a program for congestion control using Leaky bucket algorithm.
9. Write a program for frame sorting techniques used in buffers.
10. Wireshark
    i. Packet Capture Using Wire shark
    ii. Starting Wire shark
    iii. Viewing Captured Traffic
11. Analysis and Statistics & Filters.
12. How to run Nmap scan
13. Operating System Detection using Nmap Do the following using NS2 Simulator
    i. NS2 Simulator-Introduction
    ii. Simulate to Find the Number of Packets Dropped

iii. Simulate to Find the Number of Packets Dropped by TCP/UDP

iv. Simulate to Find the Number of Packets Dropped due to Congestion

v. Simulate to Compare Data Rate & Throughput.

vi. Simulate to Plot Congestion for Different Source/Destination

vii. Simulate to Determine the Performance with respect to Transmission of Packets

Text Books:

1. Computer Networks, Andrew S Tanenbaum, David. j. Wetherall, 5th Edition. PearsonEducation/PHI.

Reference Books:

1. An Engineering Approach to Computer Networks, S. Keshav, 2nd Edition, Pearson Education.
2. Data Communications and Networking – Behrouz A. Forouzan. 3rd Edition, TMH.

Course Outcomes:

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

1. Implement data link layer farming methods
2. Analyze error detection and error correction codes.
3. Implement and analyze routing and congestion issues in network design.
4. Implement Encoding and Decoding techniques used in presentation layer
5. To be able to work with different network tools

CO-PO-PSO Mapping:

	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	M			M									M	L
CO-2	M	M					M						M	L
CO-3	M	M	M		M		M				M		H	M
CO-4	H	H			M								H	M
CO-5	L		M	H								M	M	H

H-HIGH **M**-MODERATE **L**-LOW