



**MARRI LAXMAN REDDY**

**INSTITUTE OF TECHNOLOGY AND MANAGEMENT**

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **2250578 COMPUTER NETWORKS LAB**

**B. Tech.III Year-I Sem**

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### **COURSE OUTCOMES - CO'S**

- Demonstrate the ability to set up and configure basic network topologies using computers, media, and devices.
- Experiment key aspects of data communication, such as packet switching, circuit switching, and cell switching
- Implement Hamming distance by constructing and verifying error detection and correction methods in block codes.
- Evaluate network performance parameters such as latency, bandwidth, and throughput for single links and end-to-end channels using simulation tools..
- Utilize bit errors, error detection and correction methods, and analyze their performance in terms of redundancy and efficiency

### **LIST OF EXPERIMENTS:**

1. Implement the data link layer framing methods such as character, character-stuffing and bit stuffing.
2. Write a program to compute CRC code for the polynomials CRC-12 and CRC-16. 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
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.



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4. Implement Dijkstra'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 technique used in buffers.
10. Write a program for frame sorting technique used in buffers.
11. Wire shark
  - a. Packet Capture Using Wire shark
  - b. Starting Wire shark
  - c. Viewing Captured Traffic
  - d. Analysis and Statistics & Filters.
12. How to run Nmap scan ?
13. Operating System Detection using Nmap
14. Do the following using NS2 Simulator
  - a. NS2 Simulator-Introduction
  - b. Simulate to Find the Number of Packets Dropped
  - c. Simulate to Find the Number of Packets Dropped by TCP/UDP
  - d. Simulate to Find the Number of Packets Dropped due to Congestion
  - e. Simulate to Compare Data Rate & Throughput.
  - f. Simulate to Plot Congestion for Different Source/Destination