

# **Lab Manual**

## **Network Programming Lab**



**Department of Computer Science &  
Engineering**  
**College Of Engineering Cherthala , Alappuzha**

**COLLEGE OF ENGINEERING CHERTHALA, ALAPPUZHA**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Vision:**

To evolve into a center of excellence in the field of computer science and engineering providing innovative and quality engineers contributing to the society and nation

**Mission:**

To impact high quality professional training with emphasis on state of the art technology in computer science and engineering including professional and ethical values in the young minds

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING****PROGRAMME OUTCOMES (POs)**

PO1	Apply the knowledge of mathematics, science and engineering fundamentals to solve complex computer science and engineering related problems.
PO2	Identify, formulate, make literature reviews, and analyze complex computer science and engineering problems to reach substantiated conclusions.
PO3	
PO4	
PO5	
PO6	
PO7	
PO8	
PO9	
PO10	
PO11	
PO12	

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## Syllabus

### **\*Mandatory List of Exercises/ Experiments**

**(Note: At least one program from each topic in the syllabus should be completed in the Lab)**

1. Getting started with the basics of network configuration files and networking commands in Linux.\*
2. To familiarize and understand the use and functioning of system calls used for network programming in Linux.\*
3. Implement client-server communication using socket programming and TCP as transport layer protocol\*
4. Implement client-server communication using socket programming and UDP as transport layer protocol\*
5. Implementation of a multi user chat server using TCP as transport layer protocol.
6. Implementation of concurrent time server using UDP
7. Simulate sliding window flow control protocols.\* (Stop and Wait, Go back N, Selective Repeat ARQ protocols)

8. Implement and simulate algorithm for Distance Vector Routing protocol or Link State Routing protocol.\*
9. Implement Simple Mail Transfer Protocol.
10. Implement File Transfer Protocol.\*
11. Implement congestion control using a leaky bucket algorithm.\*
12. Understanding the Wireshark tool.\*
13. Study of NS2 simulator\*

## Course Outcomes

CO#	Course Outcomes
CO1	Use network related commands and configuration files in Linux Operating System. (Cognitive Knowledge Level: Understand).
CO2	Develop network application programs and protocols. (Cognitive Knowledge Level: Apply)
CO3	Analyze network traffic using network monitoring tools. (Cognitive Knowledge Level: Apply)
CO4	Design and set up a network and configure different network protocols. (Cognitive Knowledge Level: Apply)
CO5	Develop simulation of fundamental network concepts using a network simulator. (Cognitive Knowledge Level: Apply)