

PUNE INSTITUTE OF COMPUTER TECHNOLOGY  
DHANKAWADI, PUNE-43

LIST OF LAB EXPERIMENTS  
ACADEMIC YEAR: 2025-26

Department: Computer Engineering  
Class: T.E.  
Subject Name: Laboratory Practice-I  
Subject code: 310248

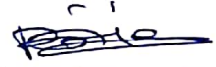
Date: 01/07/2025  
Semester: I  
Examination scheme:  
Term Work: 25  
Practical: 25

| PART I: Systems Programming and Operating System   |   |
|--|---|
| Group A  |   |
| Expt. No.  | Problem Statement   |
| A1-01  | Design suitable Data structures and implement Pass-I of a two-pass assembler for pseudo-machine. Implementation should consist of a few instructions from each category and a few assembler directives.     |
| A1-02  | Design suitable Data structures and implement Pass-II of a two-pass assembler for pseudo-machine. The output of Pass-I(intermediate code file, symbol table and literal table) should be input for Pass-II. |
| A2-01  | Design suitable data structures and implement Pass-I of a two-pass macro-processor.   |
| A2-02  | Design suitable data structures and implement Pass-II of a two-pass macro-processor. The output of Pass-I(MNT, MDT, and intermediate code file without any macro definitions) should be input for Pass-II.  |
| Group B (Any Two Assignments from Sr. No.4 to 7)<br>(Programming language: C/ C++/ JAVA/ Python)   |   |
| B1   | Write a program to solve Classical Problems of Synchronization using Mutex and Semaphore.   |
| B2   | Write a program to simulate CPU Scheduling Algorithms: FCFS, SJF (Preemptive), Priority (Non-Preemptive) and Round Robin (Preemptive).  |
| B3   | Write a program to simulate Memory placement strategies—bestfit, firstfit, nextfit and worst fit.   |
| B4   | Write a program to simulate Page replacement algorithm.   |
| PART II: Elective I<br>(Any Two assignments from each elective subject are compulsory, all the assignments should be covered among different batch students) |   |
| Human Computer Interface<br>(Programming tools recommended: GUI in python)   |   |
| 1  | Design a paper prototype for selected Graphical User Interface.   |
| 2  | Implement GOMS (Goals, Operators, Methods, and Selection rules) modeling technique to model user's behavioral given scenario.   |
| 3  | Design a User Interface in Python.  |
| 4  | To redesign existing Graphical User Interface with screen complexity.   |

| Distributed System |   |
|--------------------|---|
| 1                  | Implementation of Inter-process communication using socket programming :implementing multithreaded echo server. |
| 2                  | Implementation of RPC Mechanism.  |
| 3                  | Simulation of election algorithms(Ring and Bully).  |
| 4                  | Implementation of Clock Synchronization:a)NTP b)Lamport's clock.  |



Subject Coordinator  
Snehal Parag Shintre



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