**Lab Activity Document**

Course - Distributed Computing Course Code : CS304

Lab Syllabus -

| Sr. No | Title of the Experiments |
| --- | --- |
| 1 | Implementation of Client server Communication using socket. |
| 2 | Implementation of Client-server Communication using RPC. |
| 3 | Implementation of RMI. |
| 4 | Implementation of multi-threading in distributed systems. |
| 5 | Implementation of Clock Synchronization (logical/physical). |
| 6 | Implementation of Election algorithm. |
| 7 | Implementation of Mutual Exclusion Algorithm. |
| 8 | Implement small applications using data replication. |
| 9 | Implementation of Client-Server based program to check data consistency. |
| 10 | Implement Load Balancing Algorithm. |

Typical Lab Template

SPIT HEADING + Course Name etc.

| UID + Name/s |  |
| --- | --- |
|  |  |
| Date |  |
| Lab # |  |
| Aim |  |
| Objective |  |
| Theory/Methodology |  |
| Implementation / Code |  |
| Output |  |
| Conclusion |  |
| References |  |

Activity Overview

1. Students select a topic of any real-life application (mini project) for performing their lab experiments.
2. Students create a Design brief of a Mini Project and it should contain the following-
   * 1. Problem statement
     2. Scope of the project
     3. Objective of the project
     4. Functional Requirements of the project
     5. Non-Functional Requirements of the project.
     6. System Design
3. Students will perform relevant experiments and submit the documents for their respective faculty to grade.
4. The final project is presented at the end with a demo and a video submission.

Grading and Documents to be submitted as part of ISE

| Document No. | Document Title and Contents | Experiment Nos. that cover the document. | Points |
| --- | --- | --- | --- |
| 1 | Introduction to Distributed Systems   * Design Brief | NA | 10 |
| 2 | Communication in Distributed Systems   * Socket Programming * RPC * RMI | 1,2,3 | 10 |
| 3 | Process in Distributed Systems   * Multithreading | 4 | 10 |
| 4 | Synchronization in Distributed System 1   * Clock Synchronization | 5 | 10 |
| 5 | Synchronization in Distributed System 2   * Election * Mutual Exclusion Algorithm | 6,7 | 10 |
| 6 | Consistency and Replication   * Data Replication * Data Consistency | 8,9 | 10 |
| 7 | Load Balancing   * Load Balancing Algorithm | 10 | 10 |
| Final Submission of Mini Project with Presentation+Demo + Video | | | 30 |
| Total for ISE Lab | | | 100 |

ISE to be scaled from 100 Marks to 32 marks

ESE - Oral Examination (Viva) for 30 marks to be scaled to 8 marks

ESE + ISE = 40