

CSE325:OPERATING SYSTEMS LABORATORY

L:0 T:0 P:2 Credits:1

Course Outcomes: Through this course students should be able to

CO1 :: examine and validate the various features of process and threads, including creation, replacing and termination

CO2 :: use of various Linux commands and system calls to understand how processes request operating system services

CO3 :: simulate the synchronization problems to ensure consistency of data using Mutex and Semaphores

CO4 :: examine inter-process communication using pipe, shared memory, and message passing mechanisms

List of Practicals / Experiments:

Introduction to Linux

- Basic Linux Commands: ls, cat, man, cd, touch, cp, mv, rmdir, mkdir, rm, chmod, pwd

Simulation of Shell commands using system calls

- file/directory related system calls / library functions (read, write, open, close, lseek, opendir, readdir, closedir, etc)

Process creation and threading

- Creating processes
- Creating Threads
- Replacing process image using execlp
- Process duplication using fork

Synchronization

- Synchronization with Mutexes
- Synchronization with semaphores
- Race Condition

Inter-process communication

- Pipes, popen and pclose functions
- Stream pipes, passing file descriptors
- Shared memory
- Message passing

Text Books: 1. BEGINING LINUX PROGRAMMING by NEIL MATHEW & RICHARD STONES, WILEY

References: 1. OPERATING SYSTEM CONCEPTS by ABRAHAM SILBERSCHATZ, GALVIN, WILEY
2. ADVANCED PROGRAMMING IN THE UNIX ENVIRONMENT by W.RICHARD STEVENS AND STEPHEN A. RAGO, PEARSON
3. OPERATING SYSTEMS A DESIGN-ORIENTED APPROACH by CHARLES CROWLEY, M.G.Hills