CSE325:OPERATING SYSTEMS LABORATORY

Course Outcomes: Through this course students should be able to

CO1 :: Discuss basic Shell commands to do file management.

CO2 :: Analyze various system calls in order to utilize them effectively.

CO3 :: Demonstrate various process management related tasks.

CO4 :: Develop multithreaded processes using pthread library.

CO5 :: Apply the various synchronization problems to ensure data consistency using mutex and semaphores.

CO6 :: Analyze different inter process communication strategies.

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. BEGINNING LINUX PROGRAMMING by NEIL MATHEW & RICHARD STONES, WILEY

References:

1. UNIX NETWORK PROGRAMMING by RICHARD STEVENS, PRENTICE HALL