JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF INFORMATION TECHNOLOGY

II Year – I Semester		L	T	P	C
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OPERATING SYSTEM LAB					

Course Objectives:

- To understand the design aspects of operating system
- To study the process management concepts & Techniques
- To study the storage management concepts
- To familiarize students with the Linux environment
- To learn the fundamentals of shell scripting/programming

Course Outcomes:

- To use Unix utilities and perform basic shell control of the utilities
- To use the Unix file system and file access control
- To use of an operating system to develop software
- Students will be able to use Linux environment efficiently
- Solve problems using bash for shell scripting

1) a) Study of Unix/Linux general purpose utility command list: man,who,cat, cd, cp, ps, ls, mv, rm, mkdir, rmdir, echo, more, date, time, kill, history, chmod, chown, finger, pwd, cal, logout, shutdown.
   b) Study of vi editor
   c) Study of Bash shell, Bourne shell and C shell in Unix/Linux operating system
   d) Study of Unix/Linux file system (tree structure)
   e) Study of .bashrc, /etc/bashrc and Environment variables.
2) Write a C program that makes a copy of a file using standard I/O, and system calls
3) Write a C program to emulate the UNIX ls –l command.
4) Write a C program that illustrates how to execute two commands concurrently with a command pipe. Ex: - ls –l | sort
5) Simulate the following CPU scheduling algorithms: (a) Round Robin (b) SJF (c) FCFS (d) Priority
6) Multiprogramming-Memory management-Implementation of fork (), wait (), exec() and exit (), System calls
7) Simulate the following:
   a) Multiprogramming with a fixed number of tasks (MFT)
   b) Multiprogramming with a variable number of tasks (MVT)
8) Simulate Bankers Algorithm for Dead Lock Avoidance
9) Simulate Bankers Algorithm for Dead Lock Prevention.
10) Simulate the following page replacement algorithms:
    a) FIFO b) LRU c) LFU
11) Simulate the following File allocation strategies
    (a) Sequenced (b) Indexed (c) Linked

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12) Write a C program that illustrates two processes communicating using shared memory

13) Write a C program to simulate producer and consumer problem usingsemaphores

14) Write C program to create a thread using pthreads library and let it run its function.

15) Write a C program to illustrate concurrent execution of threads using pthreads library.