JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

COMPUTER SCIENCE AND ENGINEERING

CS403PC

COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

CS403PC

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

Scheme of Operating System

S. No.	Course Code	Course Title	L	T	P	Credits
3	CS403PC	Operating Systems	3	0	0	3
6	CS406PC	Operating Systems Lab	0	0	3	1.5

CS406PC: OPERATING SYSTEMS LAB (Using UNIX/LINUX)

B.TECH II Year II Sem

Prerequisites

- A course on “Programming for Problem Solving”.
- A course on “Computer Organization and Architecture”.

Co-requisite:

- A course on “Operating Systems”.

Course Objectives & Course Outcomes

Course Objectives:

- To provide an understanding of the design aspects of operating system concepts through simulation
- Introduce basic Unix commands, system call interface for process management, interprocess communication and I/O in Unix.

Course Outcomes:

- Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management.
- Able to implement C programs using Unix system calls

List of Experiments -1

- Write C programs to simulate the following CPU Scheduling algorithms:
  a) FCFS
  b) SJF
  c) Round Robin
  d) priority

List of Experiments -2

- Write programs using the I/O system calls of UNIX/LINUX operating system:
  - open, close
  - read, write,
  - fcntl, seek,
  - stat,
  - opendir,
  - readdir

List of Experiments -3

- Write a C program to simulate
  - Bankers Algorithm
    - for Deadlock Avoidance and
    - Prevention.

List of Experiments -4

- Write a C program to implement the Producer – Consumer problem using semaphores using UNIX/LINUX system calls.

List of Experiments -5

- Write C programs to illustrate the following IPC mechanisms:
  - a) Pipes
  - b) FIFOs
  - c) Message Queues
  - d) Shared Memory

List of Experiments -6

- Write C programs to simulate the following memory management techniques:
  - a) Paging
  - b) Segmentation

TEXT BOOKS

1. Operating System Principles- *Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley*
2. Advanced programming in the Unix environment, *W.R.Stevens, Pearson education.*

REFERENCE BOOKS

1. Operating Systems – Internals and Design Principles, William Stallings, Fifth Edition–2005, Pearson Education/PHI
2. Operating System - A Design Approach-Crowley, TMH.
3. Modern Operating Systems, Andrew S Tanenbaum, 2nd edition, Pearson/PHI
4. UNIX Programming Environment, Kernighan and Pike, PHI/Pearson Education
5. UNIX Internals: The New Frontiers, U. Vahalia, Pearson Education