PCS5G001 OPERATING SYSTEM (3-0-1)

MODULE-I   **(10 Hours)**

Overview Operating System, Simple Batch Processing Systems, Multiprogramming and Time Sharing systems. Personal Computer Systems, Parallel Systems, Distributed Systems and Real- time Systems.

Operating System Structures: Operating System Services, System components, Protection system, Operating System Services, system calls, Process Concept, Process Scheduling, Operation on Processes, Inter-process communication, Examples of IPC Systems, Multithreading Models, Threading Issues, Process Scheduling Basic concepts, scheduling criteria, scheduling algorithms, Thread Scheduling.

MODULE-II   **(12 Hours)**

Process Coordination, Synchronization, Critical section problem, Synchronization hardware, Semaphores, Classical problems of synchronization, Monitors. Deadlocks, System model, Deadlock Characterization, Handling Deadlocks, Deadlock Prevention, Deadlock avoidance, Deadlock Detection, recovery from Deadlock. Memory Management strategies, Logical versus Physical Address space, swapping, contiguous Allocation, Paging, Segmentation. Virtual Memory: Background, Demand paging, performance of Demand paging, Page Replacement, Page Replacement Algorithms. Allocation of frames, Thrashing, Demand
Segmentation.

MODULE-III   **(08 Hours)**

Recovery, Overview of Mass Storage Structure, Disk Structure, Disk Scheduling, Disk Management, Swap-Space Management, I/O System Overview, I/O Hardware, Application I/O Interface, Kernel I/O Subsystem, Transforming I/O Request to Hardware Operation.

MODULE-IV   **(10 Hours)**

File system, file structure, Directory Structure, Allocation Methods, Basic concepts of Linux system, administration requirements, setting up Linux multi-server setup, setting up of local network services, domain name systems, Virtualization concepts, classification, VM ware and Hypervisor concepts.

TEXT BOOK:

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: **Operating System Concepts,** 8th edition, Wiley-India, 2009.
2. Naresh Chouhan**: Principles of Operating System,** Oxford University Press.
3. Dhamdhare: **Operating Systems: A Concept**, 3rd Edition, Tata McGraw Hill Education India

REFERENCE BOOK:

1.   William Stallings: **Operating Systems,** PHI Learning Pvt. Ltd.

2.   H.M. Deitel, P. J. Deitel, D. R. Choffnes: **Operating Systems,** 3rdEdition, Pearson Education.

3.   Andrew S. Tanenbaum: **Mordern Operating Systems,** 3rdEdition, PHI Learning Pvt. Ltd.