**PROFESSIONAL ELECTIVES (PE-II)**

## PET6J011 OPERATING SYSTEM

**MODULE-I**

1. **Introduction to operating system-** About an Operating System, Simple Batch Systems, Multiprogramming and Time Sharing systems; Personal Computer Systems, Parallel Systems, Distributed Systems and Real time Systems.
2. **Operating System Structures**- Operating System Services, System components, Protection system, Operating System Services, system calls.
3. **Process management**- 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,

**MODULE-II**

4. **Process coordination-** Synchronization; The Critical section problem, Peterson's solution, Synchronization hardware, Semaphores, Classical problems of synchronization, Monitors.
5. **Deadlocks-** System model, Deadlock Characterization Methods for Handling Deadlocks, Deadlock Prevention, Deadlock avoidance, Deadlock Detection, recovery from Deadlock.

**MODULE-III**

6. **Memory management**- Memory Management strategies, Logical versus Physical Address space, swapping, contiguous Allocation, Paging, Segmentation
7. **Virtual Memory-** Background, Demand paging, performance of Demand paging, Page Replacement, Page Replacement Algorithms; Allocation of frames, Thrashing, Demand Segmentation.

**MODULE-IV**

8. **Storage management-** File System Concept, Access Methods, File System Structure, File System Structure, File System Implementation, Directory implementation, Efficiency and Performance, 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.

**ADDITIONAL MODULE (TERMINAL EXAMINATION-INTERNAL)**

9. Thread Scheduling,
10. **Case studies**; The LINUX System, Windows , POSIX compliant

**TEXT BOOKS**

1. Operating System Concepts**,** Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Wiley-India, 8thEdition, 2009.
2. Principles of Operating Systems, Naresh Chauhan, Oxford University Presss,1st Edition,2014
3. Modern Operating Systems**,** Andrew S. Tanenbaum and HerbertBos, Pearson publication, 3rdEdition, 2014.

**REFERENCE BOOKS**

1. Operating Systems**:** A Spiral Approach, Elmasri, Carrick, Levine, McGraw-Hill, TMH Edition,2009.
2. Understanding Operating Systems **,**Ida MFlynn, Ann McHoes, Cengage Learning,7th Edition,2013.
3. Operating Systems **,**Pabitra Pal Choudhury, PHI, Eastern Economy Edition,2009.
4. Operating Systems**,** William Stallings, PHI,5th Edition,2007.
5. Operating Systems**,** H.M. Deitel, P. J. Deitel, D. R. Choffnes, Pearson, 3rd Edition,2002.