Course: 504: Operating System - II

Course Code	504
Course Title	Operating System – II
Credit	2
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including class work, examination, preparation etc.)
Review / Revision	June 2019
Purpose of Course	To teach advanced functions and concepts of operating system.
Course Objective	To understand various advanced functions and concepts to manage operating system along with scheduling concept.
Pre-requisite	Fundamental Knowledge of Operating System.
Course outcome	Students will get good understanding of various functions and management of operating system.
Course Content	**Unit 1. Processes Management** 1.1 Process Concept 1.2 Process Scheduling 1.3 Scheduling Criteria 1.4 Scheduling Algorithms **Unit 2. Process Synchronization** 2.1 Critical Section Problem 2.2 Producer / Consumer Problem 2.3 Semaphores 2.4 Monitors 2.5 Inter Process Communication 2.6 Classical IPC Problems 2.6.1 The Dining Philosopher 2.6.2 The Sleeping Barber Problem **Unit 3. Deadlocks** 3.1 System Model 3.2 Deadlock Characteristics 3.3 Methods of Handling Deadlock 3.4 Deadlock Prevention 3.5 Deadlock Avoidance 3.6 Deadlock Detection 3.7 Recovery from Deadlock **Unit 4. Memory Management** 4.1 Memory Management Functions 4.2 Contiguous Memory Allocation 4.2.1 Partitioned Memory 4.2.2 Static and Dynamic Allocation 4.3 Non-Contiguous Memory Allocation 4.3.1 Paging 4.3.2 Segmentation **Unit 5. Virtual Memory Management** 5.1 Demand Paging 5.2 Allocation of Frames 5.3 Page Replacement 5.4 Thrashing

Reference Books	1. Operating System Concepts, Silberschatz, Addition Wesley 2. Operating Systems: Internals & Design Principles, William Stallings, PHI 3. Operating System: Design & Implementation, Tenenbaum & Albert Woodhull, Pearson 4. Modern Operating Systems, Andrew S. Tenenbaum, PHI 5. Operating Systems, Donovan M, McGraw Hill Publication 6. Operating Systems: A Design Oriented approach, Crowley, Tata McGraw Hill Publication 7. Operating Systems, S. Godbole, Tata McGraw Hill Publication
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.