

## 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 2016  |
| 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             | <p><b>Unit 1. Processes Management</b></p> <ul style="list-style-type: none"> <li>1.1 Process Concept</li> <li>1.2 Process Scheduling</li> <li>1.3 Scheduling Criteria</li> <li>1.4 Scheduling Algorithms</li> </ul> <p><b>Unit 2. Process Synchronization</b></p> <ul style="list-style-type: none"> <li>2.1 Critical Section Problem</li> <li>2.2 Producer / Consumer Problem</li> <li>2.3 Semaphores</li> <li>2.4 Inter Process Communication</li> </ul> <p><b>Unit 3. Deadlocks</b></p> <ul style="list-style-type: none"> <li>3.1 System Model</li> <li>3.2 Deadlock Characteristics</li> <li>3.3 Methods of handling Deadlock</li> <li>3.4 Deadlock Prevention</li> <li>3.5 Deadlock Avoidance</li> <li>3.6 Deadlock Detection</li> <li>3.7 Recovery from Deadlock</li> </ul> <p><b>Unit 4. Memory Management</b></p> <ul style="list-style-type: none"> <li>4.1 Memory Management Functions</li> <li>4.2 Contiguous Allocation <ul style="list-style-type: none"> <li>4.2.1 Partitioned Memory</li> <li>4.2.2 Static and Dynamic Allocation</li> </ul> </li> </ul> <p><b>Unit 5. Virtual Memory Management</b></p> <ul style="list-style-type: none"> <li>5.1 Paging</li> <li>5.2 Demand Paging</li> <li>5.3 Segmentation</li> <li>5.4 Allocation of Frames</li> <li>5.5 Page Replacement</li> <li>5.6 Thrashing</li> </ul> |
| Reference Books            | <ol style="list-style-type: none"> <li>1. Operating System Concepts, Silberschatz, Addition Wesley</li> <li>2. Operating Systems: Internals &amp; Design Principles, William Stallings, PHI</li> <li>3. Operating System: Design &amp; Implementation, Tenenbaum &amp; Albert Woodhull, Pearson</li> </ol>   |

|                      |   |
|----------------------|---|
|                      | <ol style="list-style-type: none"> <li>4. Operating Systems, Donovan M, McGraw Hill Publication</li> <li>5. Operating Systems: A Design Oriented approach, Crowley, Tata McGraw Hill Publication</li> <li>6. Operating Systems, S. Godbole, Tata McGraw Hill Publication</li> </ol> |
|                      |   |
| Teaching Methodology | Class Work, Discussion, Self-Study, Seminars and/or Assignments   |
| Evaluation Method    | <p>30% Internal assessment.</p> <p>70% External assessment.</p>   |