



<b>UNIT I</b>
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**Chapter 1 : Overview of Operating System 1-1 to 1-42**

<p><b>Syllabus</b> : Operating System Objectives and Functions, The Evolution of Operating Systems, Developments Leading to Modern Operating Systems, Virtual Machines. BASH Shell scripting : Basic shell commands, shell as a scripting language.</p>
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<b>UNIT II</b>
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**Chapter 2 : Process Description and Control****2-1 to 2-55**

**Syllabus : Process** : Concept of a Process, Process States, Process Description, Process Control (Process creation, Waiting for the process/processes, Loading programs into processes and Process Termination), Execution of the Operating System.

**Threads** : Processes and Threads, Concept of Multithreading, Types of Threads, Thread programming Using Pthreads.

**Scheduling** : Types of Scheduling, Scheduling Algorithms, and Thread Scheduling.

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### UNIT III

## Chapter 3 : Concurrency Control 3-1 to 3-38

**Syllabus :** Process/thread Synchronization and Mutual

**Exclusion :** Principles of Concurrency, Requirements for Mutual Exclusion, Mutual Exclusion : Hardware Support, Operating System Support (Semaphores and Mutex), Programming Language Support (Monitors).

**Classical synchronization problems :** Readers/Writers Problem, Producer and Consumer problem, Interprocess communication (Pipes, shared memory : system V).

**Deadlock :** Principles of Deadlock, Deadlock Modeling, Strategies to deal with deadlock : The Ostrich Algorithm, Deadlock Prevention, Deadlock Avoidance, Deadlock detection and recovery, An Integrated Deadlock Strategy, Example : Dining Philosophers Problem.

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**UNIT IV**

**Chapter 4 : Memory Management 4-1 to 4-44**

**Syllabus : Memory Management :** Memory Management Requirements, Memory Partitioning: Fixed Partitioning, Dynamic Partitioning, Buddy System, Relocation, Paging, Segmentation.

**Virtual Memory :** Hardware and Control Structures, Operating System Software.

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### Chapter 5 : Input/output and File Management

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**File Management :** Overview, File Organization and Access, File Directories, File Sharing, Record Blocking, Secondary Storage Management.

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### Chapter 6 : Systems Software and Its Importance

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## Chapter 7 : Introduction to Compilers

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