UNIT I INTRODUCTION AND OPERATING SYSTEM STRUCTURES 9

Introduction – Mainframe Systems – Desktop Systems – Multiprocessor Systems – Distributed Systems – Clustered Systems – Real Time Systems – Handheld Systems – Hardware Protection – System Components – Operating System Services – System Calls – System Programs – System Structure – Virtual Machines – System Design and Implementation.

UNIT II PROCESS MANAGEMENT 9

Process Concept – Process Scheduling – Operations on Processes – Cooperating Processes – Inter-process Communication – Threads – Overview – Threading issues – CPU Scheduling – Basic Concepts – Scheduling Criteria – Scheduling Algorithms – Multiple – Processor Scheduling – Real Time Scheduling – Case study – Linux Scheduling.

UNIT III PROCESS SYNCHRONIZATION AND DEADLOCKS 9

Critical-Section Problem – Synchronization Hardware – Semaphores – Classic problems of Synchronization – Critical regions – Monitors. System Model – Deadlock Characterization – Methods for handling Deadlocks – Deadlock Prevention – Deadlock avoidance – Deadlock detection – Recovery from Deadlocks.

UNIT IV STORAGE MANAGEMENT AND FILE SYSTEM INTERFACE 9

Storage Management – Swapping – Contiguous Memory allocation – Paging – Segmentation – Segmentation with Paging – Virtual Memory – Demand Paging – Process creation – Page Replacement – Allocation of frames – Thrashing – File Concept – Access Methods – Directory Structure – File System Mounting – Protection. Case study – Linux memory management

UNIT V FILE SYSTEM IMPLEMENTATION AND MASS STORAGE STRUCTURE 9

File System Structure – File System Implementation – Directory Implementation – Allocation Methods – Free-space Management – Disk Structure – Disk Scheduling – Disk Management – Swap-Space Management – Case study – Linux file system.