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OPERATING SYSTEMS

UNIT–I:
Introduction: Computer –system organization, Computer- system Architecture, Operating-system Structure, Operating-system Operations, Process Management, Memory Management, Storage Management, Protection and Security, Distributed Systems, Special-purpose systems ,Computing Environments , Operating-system Structure:, Operating-system Services, User , Operating-system Interface, System calls, System programs, Operating-system Design and Implementation, , Operating-system structure, Virtual Machine

UNIT–II:
Process Management:
Processes: Process Concept, Process Scheduling, Operations on Processes, Interprocess Communication, Examples of IPC Systems, Communication in Client-Server systems
Threads: Overview, Multithreading Models, Thread Libraries, Java Threads, Threading Issues, OS Examples
CPU Scheduling: Basic concepts, Scheduling Criteria, Scheduling Algorithms, Multiple-Processor Scheduling, Thread Scheduling, Operating system Examples Process Synchronization: Background, The Critical- section problem, Petersons solution, Synchronization Hardware, Semaphores, Classic problems of Synchronization, Monitors, Atomic Transactions.

UNIT–III:
Memory management: Main memory: Swapping, Contiguous memory Allocation, Paging, Structure of the Page table, Segementation Virtual memory: Background, Demand paging, copy-on-Write, Page Replacement, Allocation of frames, Thrashing, Memory-Mapped Files.

UNIT–IV:
File-system Interface: Concept, Access Methods, Directory structure, Filesystem Mounting, File sharing, Protection
File-system Implementation: File-system Structure, Implementation, Directory Implementation, Allocation Methods, Free- Space Management, Efficiency and Performance, Recovery, Log-Structured File systems, NFS Mass –storage Structure: Overview, Disk Structure, Disk Attachment, Disk Scheduling, Disk and swap-space Management, RAID Structure, Stable-Storage Implementation, Tertiary-Storage Structure I/O systems: Overview, I/O Hardware, Application I/O Interface, Kernel I/O Subsystem, Transforming I/O requests to Hardware Operations, STREAMS, Performance.

UNIT-V:

Deadlocks: System model, Deadlock Characterization, Methods for handling Deadlocks, Deadlock Prevention, Deadlock avoidance Deadlock Detection and Recovery form Deadlock.
Protection: Goals of Protection, Principles of protection, Domain of Protection, Access Matrix, Implementation of Access Matrix, Access Control, Revocation of Access Rights, Capability – Based systems, Language-Based Protection
Security: The Security Problem, Program Threads, System and Network
Threats, Cryptography as a security tool, User Authentication, Implementing security Defenses, Firewalling to protect systems and Networks.

TEXTBOOKS:
1. Operating system concepts, 7/e, Abraham Siliberschatz, Galvin, John Wiley &sons , Inc.

REFERENCES:
1. Operating systems, 6/E, William stallings, PHI/Pearson.

2. Operating systems 3/e, Dietal, Dietal, Pearson.

3. Operating systems, 2/e, Dhamdhere, TMH.

4. An introduction to Operating systems, Concepts and practice, Pramod Chandra

   P. Bhat, PHI

5. Operating systems, Elmasri, Carrick, Levine, TMH.

6. Operating systems, 3/e ,Nutt, Chaki, Neogy Pearson.

7. Operating systems, Brian L. Stuart, Cengage.

8. Operating systems, Haldar, Aravind, Pearson.

9. Operating systems, PAL Choudhury, PHI.

10. Operating systems: design and Implementation, 3/e, Tanenbaum, Woodhull.