

CA9122 OPERATING SYSTEM CONCEPTS

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UNIT I OPERATING SYSTEMS OVERVIEW 9

Operating system – Types of Computer Systems - Computer-system operation – I/O structure – Hardware Protection - System components – System calls – System programs – System structure - Process concept – Process scheduling – Operations on processes – Cooperating processes – Interprocess communication – Communication in client-server systems - Multithreading models – Threading issues – Pthreads.

UNIT II PROCESS MANAGEMENT 10

Scheduling criteria – Scheduling algorithms – Multiple-processor scheduling – Real time scheduling – Algorithm Evaluation – Process Scheduling Models - The critical-section problem – Synchronization hardware – Semaphores – Classic problems of synchronization – critical regions – Monitors - System model – Deadlock characterization – Methods for handling deadlocks – Recovery from deadlock

UNIT III STORAGE MANAGEMENT 9

Memory Management – Swapping – Contiguous memory allocation – Paging – Segmentation – Segmentation with paging. Virtual Memory: Background – Demand paging – Process creation – Page replacement – Allocation of frames – Thrashing.

UNIT IV I/O SYSTEMS 9

File concept – Access methods – Directory structure – File-system mounting – Protection - Directory implementation – Allocation methods – Free-space management - Disk scheduling – Disk management – Swap-space management.

UNIT V CASE STUDY 8

The Linux System - History – Design Principles – Kernel Modules – Process Management – Scheduling – Memory management – File systems – Input and Output – Inter-process Communication – Network Structure – Security – Windows 2000 - History – Design Principles – System Components – Environmental subsystems – File system – Networking.

TOTAL = 45

TEXT BOOKS

1. Silberschatz, Galvin and Gagne, “Operating System Concepts”, Sixth Edition, John Wiley & Sons Inc 2002.

REFERENCES

1. Andrew S. Tanenbaum, “Modern Operating Systems”, Second Edition, Addison Wesley, 2001.
2. Gary Nutt, “Operating Systems”, Second Edition, Addison Wesley, 2001.

3. H M Deital, P J Deital and D R Choffnes, "Operating Systems" , Pearson Education, 2004.