

CAP213:PRINCIPLES OF OPERATING SYSTEMS

L:4 T:0 P:0 Credits:4

Course Outcomes: Through this course students should be able to

CO1 :: identify the evolution of OS functionality, structures, and layers.

CO2 :: identify CPU management takes place through multiprocessing and switching between various processes.

CO3 :: explore different file system allocation and access techniques.

CO4 :: explore different disk management techniques

CO5 :: NULL

Unit I

Introduction to operating system : Introduction, Types of operating systems, System components, Operating system services, System calls

Process : Process concept, Process states, Operations on processes

Unit II

Process Management : Process control block, Context switching, Process scheduling, Interprocess communication, Threads and Multithreading, a case study on Windows/Linux

Unit III

CPU Scheduling : Introduction, Types of scheduling, Scheduling Criteria, Scheduling Algorithms, a case study on Windows/Linux

Process Synchronization : Background, Critical section problem, Semaphores, Concept of serializability

Unit IV

Deadlocks : Deadlock Characterization, Methods for handling deadlocks, Deadlock Prevention, Deadlock avoidance, Recovery from Deadlock, a case study on Windows/Linux

Unit V

Memory Management : logical versus physical address space, Address Binding, Dynamic Loading & Dynamic Linking, Overlays, Swapping, Contiguous Allocation, Paging, Segmentation, Segmentation with Paging, Page Replacement Algorithms, Allocation of frames, Thrashing, Working-set model, a case study on Windows/Linux

Unit VI

Protection : Introduction, File Access Methods, Access Matrix

Disk Management : Disk structure, disk scheduling, FCFS scheduling, SSTF scheduling, SCAN scheduling, C-SCAN scheduling, a case study on Windows/Linux

Text Books:

1. OPERATING SYSTEMS CONCEPTS by A SILBERSCHARTZ AND GALVIN, ADDISON-WESLEY

References:

1. OPERATING SYSTEMS CONCEPTS AND DESIGN by MILAN MILANKOVIC, MC GRAW HILL
2. . MODERN OPERATING SYSTEM by ANDREW S. TANENBAUM, PRENTICE HALL

