IT1017 Operating Systems and Administration

Unit vs. Chapter mapping with e-book Ninth edition

***UNIT I - INTRODUCTION (5 hours)***

Computer System Organization (Chapter 1: 1.2 )

Operating System Structure and Operations (Chapter 1: 1.4, 1.5, Chapter 2: 2.7 , also Read Chapter 2: 2.1 Operating System Services)

System Calls (Chapter 2: 2.3, 2.4)

System Programs (Chapter 1 2.5)

OS Generation and System Boot (Chapter 2 2.9, 2.10)

***UNIT II-PROCESS MANAGEMENT (12 hours)***

Processes-Process Concept (Chapter 3 3.1)

Process Scheduling (Chapter 3 3.2)

Operations on Processes (Chapter 3 3.3)

Interprocess Communication (Chapter 3 3.4)

Threads- Overview (Chapter 4: 4.1)

Multicore Programming (Chapter 4: 4.2)

Multithreading Models (Chapter 4: 4.3)

Process Synchronization: (Chapter 5: 5.1))

Critical Section Problem (Chapter 5: 5.2, 5.3, 5.4)

MutexLocks (Chapter 5: 5.5)

Semophores (Chapter 5: 5.6, 5.7 (Classical problems of Synchronization included)

Monitors (Chapter 5: 5.8 (till 5.8.2))

CPU Scheduling (Chapter 6: 6.1, 6.2, 6.3)

Deadlocks (Chapter 7: 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7)

***UNIT III-MEMORY MANAGEMENT (8 hours)***

Main Memory (Chapter 8: 8.1, 8.2)

Contiguous Memory Allocation (Chapter 8: 8.3)

Segmentation (Chapter 8: 8.4)

Paging (Chapter 8:8.5, 8.6)

32 and 64 bit architecture Examples (Chapter 8: 8.7)

Virtual Memory (Chapter 9: 9.1)

Demand Paging (Chapter 9: 9.2, 9.3)

Page Replacement (Chapter 9: 9.4)

Allocation (Chapter 9: 9.5)

Thrashing (Chapter 9: 9.6)

Allocating Kernel Memory (Chapter 9: 9.8)

OS Examples (Chapter 9: 9.10)

***UNIT IV-STORAGE MANAGEMENT (10 hours)***

Mass Storage Structure Overview (Chapter 10: 10.1)

Disk Scheduling and Management (Chapter 10: 10.4, 10.5)

File System Storage: File Concepts (Chapter 11: 11.1, 11.2)

Directory and Disk Structure (Chapter 11: 11.3)

Sharing and Protection (Chapter 11: 11.5, 11.6)

File System Implementation (Chapter 12: 12.2, 12.3 (Directory implementation also included)

File System Structure (Chapter 12: 12.1)

Directory Structure (Chapter 10: 10.2)

Allocation Methods (Chapter 12: 12.4)

Free Space Management (Chapter 12: 12.5)

I/O Systems (Chapter 13: 13.1- 13.7)

***UNIT V- LINUX SYSTEM ADMINISTRATION (10 hours)***

**(References/Support document will be provided later)**

Linux System- Basic Concepts-System Administration-Requirements for Linux System Administrator, Setting up a LINUX Multifunction Server, Domain Name System, Setting Up Local Network Services; Virtualization- Basic Concepts, Setting Up Xen, VMware on Linux Host and Adding Guest OS.