

MCA-20A
(Elective - I)
Linux System Administration

Unit 1 : Introduction to UNIX

Evolution of Unix, Features, System structure, File System

Unit 2 : File I/O

System calls for file I/O, File Sharing, Concept of File descriptor duplication, File Control

Unit 3 : Files and Directories

File status, File types, Permission, ownership and related System call. File system, Links, File times Directory related functions

Unit 4 : Standard I/O Library

Streams, Buffering, open, read & write on streams, Binary I/O, Formatted I/O Temporary Files

Unit 5 : Environment of Unix Process

Process invocation and termination, Environment variables & List Memory, Layout of C program & memory management routines

Unit 6 : Process control

Process identifiers, system calls related to Multitasking, Race condition Zombie & Orphan process, system

Unit 7: Process relationship

Sessions, Controlling Terminal, Job Control, Sharing data among parent & Child using Files

Unit 8 : Signals

Signal Concepts, Signal handling, Important, signals: kill, raise, alarm, pause, and abort

Unit 9 : Advanced I/O

Record Locking , Streams, I/O Multiplexing, Memory Mapped I/O, various Read and write

Unit 10 : Inter Process Communication

Pipes, FIFO, System V IPC (Message Queue, Semaphore, Shared Memory)

Suggested readings:

1. Parata, "Advanced Unix programming guide", BPB
2. Yashwant Kanitkar, "Unix Shell Programming", BPB
3. Meeta Gandhi, Tilak Shetty, Rajiv Shah, "The 'C' Odyssey Unix – the open boundless C", BPB
4. Sumitabh Das, "Unix Concepts and applications", TMH
5. Mike Joy, Stephen Jarvis, Michael Luck, "Introducing Unix and Linux", Palgrave Macmillan.
6. Rachel Morgan, Henry McGilton, "Introducing Unix System V", TMH