



Oasis Technologies Pvt. Ltd.

OS- Course Schedule **Total Time: 10 days (20T+20P)**

Session 1: Operating System Fundamentals (using Linux)

Details: What is operating System, importance of operating system, feature of operating system, Basic of process management (different state of process, five state model of process, process image (PCB), context switch, mode switch)

Duration : 1 Day , 2T + 2P

Assignments: 1) simple program on process using fork().

Session 2: Process and Process control

Details : fork(), vfork(), exec(), wait(), sleep(), nice(), kill(), zombie(), getpid(), getppid(), setuid ()
setgid () Refer man pages.

Duration: 1 Day, 2T + 2P

Assignments: Assignments on all system calls.

Inter-Process Communication

Session 3: Signals& pipes

Details : Type of signal's , use of signal,
What is pipe, types of pipes, system call related to pipes such as pipe(), popen(), pclose().

Duration: 1 Day, 2T + 2P

Assignments:

- 1) WAP for different signal (ex. KILL)
- 2) WAP which create parent and child process and communicate with pipe.

Session 4: Shared Memory & Message Queues

Details: What is shared memory, how to use shared memory for process communication
introduction of shmget(), shmat(), shmdt(), shmctl(), What is Message Queue, msgget(),
msgsnd(), msgrcv(), msgctl() system calls

Duration: 1 Day, 2T + 2P

Assignments:

- 1) WAP to create two process which share memory for communicating each other.
- 2) WAP to create two process which communication each other through Message Queue



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Session 5: Synchronization of process (Semaphores)

Details: What is semaphores, types of semaphores, critical section, Semget(), semop(), semctl(), system calls, mutual exclusion, dead lock and avoidance technique

Duration: 1 Day, 2T + 2P

Assignments: Write a program and run it two times as two different processes, with different parameter and shared one character as critical section using semaphore

Session 6: Socket programming

Details: Definition of socket, socket connection, all socket system call such as socket(), bind(), listen(), accept(), connect(), close().

Duration: 1 Day, 2T + 2P

Assignments: 1) Write a program for socket programming.

Session 7: Thread Management

Details: What is thread, need of thread, system call of thread such thread_create() pthread_exit(), pthread_join(),

Duration: 1 Day, 2T + 2P

Assignments: 1) WAP to which demonstrate the thread concept.

Session 8: Memory management

Details: Address binding, swapping, segmentation & paging, fixed partitioning, dynamic partitioning, simple paging, simple segmentation, virtual memory paging ,virtual memory segmentation ,TLB ,Operating system policies for virtual memory .

Duration: 2 Day, 4T + 4P

Assignments: 1) WAP for threads

Session 9: Schedulers

Details: Basic concept, scheduling criteria, type of scheduler

Duration: 1 Day, 2T + 2P

Assignments: 1) WAP to which demonstrate the thread concept.
2) Revision remaining portion