B.Sc. (H) Computer Science (Semester IV)

CSHT 408 - Operating Systems

Guidelines

Chapter	Topic	Contents [1]	Hours
1	Introduction	1.1-1.5 (except 1.3), 1.10-1.12	4
2	System Structures	2.1 – 2.5 (excluding API example from 2.3), 2.7, 2.8.1, 2.8.2	4
3	Process Concept	3.1 – 3.4 (excluding API example from 3.3.1)	6
4	Multithreaded Programming	4.1, 4.2, 4.3.1, 4.4 (excluding 4.4.6)	4
5	Process Scheduling	5.1 - 5.3 (upto 5.3.4)	5
6	Synchronization	6.1 – 6.5 (excluding 6.5.4), 6.6.1, 6.6.2	6
7	Deadlocks	7.1 – 7.3 (excluding deadlock example from 7.2.1)	2
8	Memory Management Strategies	8.1 – 8.6	8
9	Virtual Memory Management	9.1, 9.2, 9.4 (upto 9.4.6), 9.5 (excluding 9.5.4), 9.6	6
10	File System	10.1-10.4, 10.6	4
11	Implementing File Systems	11.1 – 11.5 (excluding 11.4.4)	4
12	Secondary Storage Structure	12.1.1, 12.4	2
14	System Protection	14.1 – 14.3 (upto 14.3.2)	2
15	System Security	15.1, 15.2.1, 15.2.2, 15.3.1, 15.3.3, 15.5	3

Reference:

[1] A Silberschatz, P.B. Galvin, G. Gagne, **Operating Systems Concepts**, **8th Edition**, John Wiley Publications.

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CSHP 408 - Operating System Practical

Guidelines

1. WAP (using *fork()* and/or *exec()* commands) where parent and child execute:

    a) same program, same code.

    b) same program, different code.

    c) different programs.

    d) and before terminating, the parent waits for the child to finish its task.

    (*Students should experiment with fork() command to create hierarchy of child processes.*)

2. WAP to demonstrate Inter-Process Communication (IPC) between parent and child.

3. WAP to report behaviour of Linux kernel including kernel version, CPU type and model, information on configured memory, amount of free and used memory.

4. WAP to print file details including owner access permissions, file access time, where file name is given as argument.

5. WAP to copy files using system calls.

6. Write programs to implement FCFS and Round Robin scheduling algorithms.

7. Write programs to understand working of *Pthread* library.