Guidelines of B.Sc. (H) Computer Science Sem III (CBCS)

Operating System (BHCS06) Core Course - (CC)

Chapter	Topic	Contents	Lectures
1	**Introduction**	1.1, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.11	10
2	**System Structures**	2.1, 2.3, 2.4, 2.5, 2.7 – 2.7.4, 2.10 * 2.2 – Coverage with Demo for Practical Purpose	6
3	**Process Concept**	3.1, 3.2, 3.3 (excluding process creation using Windows API figure 3.11)	4
4	**Multithreaded Programming**	4.1, 4.2, 4.3, 4.4 – 4.4.1	4
5	**Process Scheduling**	5.1, 5.2, 5.3 – 5.3.4	5
6	**Synchronization**	6.1, 6.2, 6.3, 6.6 - 6.6.1	4
7	**Deadlocks**	7.1 , 7.2, 7.3 (excluding deadlocks with mutex locks)	3
8	**Memory-Management Strategies**	8.1, 8.2, 8.3, 8.4, 8.5	8
9	**Virtual-Memory Management**	9.1, 9.2, 9.3, 9.4 – 9.4.3	5
10	**File System**	10.1, 10.2, 10.3	4
12	**Mass–Storage Structure**	12.1, 12.4	3

References

1. Silberschatz, P.B. Galvin, G. Gagne, Operating System Concepts, 9th edition, John Wiley Publications.

Additional Resources

1. Dhamdhere, D. M. (2006). Operating Systems: A Concept-based Approach. 2nd edition. Tata McGraw-Hill Education.
2. Kernighan, B. W., & Rob Pike, R. (1984). The Unix programming environment (Vol. 270). Englewood Cliffs, NJ: Prentice-Hall
3. Stallings, W. (2018). Operating Systems: Internals and Design Principles. 9th edition. Pearson Education.
4. Tanenbaum, A. S. (2007). Modern Operating Systems. 3rd edition. Pearson Education.

Practical

1. Write a program(using fork() and/or exec() commands) where parent and child execute: a) same program, same code. b) same program, different code. - c) before terminating, the parent waits for the child to finish its task.
2. Write a program to to report behaviour of Linux kernel including kernel version, CPU type and model. (CPU information)
3. Write a program to report behaviour of Linux kernel including information on 19 configured memory, amount of free and used memory. (memory information)
4. Write a program to print file details including owner access permissions, file access time, where file name is given as argument.
5. Write a program to copy files using system calls.
6. Write program to implement FCFS scheduling algorithm.
7. Write program to implement Round Robin scheduling algorithm.
8. Write program to implement SJF scheduling algorithm.
9. Write program to implement non-preemptive priority based scheduling algorithm.
10. Write program to implement preemptive priority based scheduling algorithm.
11. Write program to implement SRJF scheduling algorithm.
12. Write program to calculate sum of n numbers using thread library.
13. Write a program to implement first-fit, best-fit and worst-fit allocation strategies.