Guidelines for B.Sc. (Prog.)/BA(Prog.) Computer Science Sem IV (NEP)

Paper DSC04: Operating System

S.No	Topic	Chapter(s)	Reference	Suggested Number of Weeks
1	**Introduction**	1.1, 1.4, 1.5, 1.6, 1.7, 1.8	[1]	2
2	**Operating System Structures**	2.1, 2.3, 2.4, 2.5, 2.7 – 2.7.4	[1]	2
3	**Process Management**	3.1, 3.2, 4.1 5.1, 5.2, 5.3 – 5.3.4	[1]	4
4	**Memory Management**	8.1.3, 8.2, 8.3, 8.4, 8.5-8.5.2 9.2	[1]	4
5	**File System**	10.1 –10.1.1, 10.2, 10.3 –10.3.6 12.1	[1]	2
6	**Shell scripting:** Shell variables, parameter passing, conditional statements, iterative statements, writing and executing shell scripts, utility programs (cut,paste, grep, echo, pipe, filter, etc.)	2.1.1, 8.10, 14.1- 14.3, 14.5-14.8, 14.11, 14.12 (Intro only), 12.3-12.9, 13.1-13.2, 8.7 (Intro only)	[2]	1

References
1. Galvin, S. P. B., Gagne, G., Operating System Concepts, 9th edition, John Wiley Publications, 2016, Indian Edition *(hard copy)*
2. Das, S., Unix: Concepts and Applications, 4th Edition, TMH, 2009.

Additional Resources
1. Dhamdhere, D. M., Operating Systems: A Concept-based Approach, 2nd edition, Tata McGraw-Hill Education, 2017.
2. Kernighan, B. W., Pike, R., The Unix Programming Environment, Englewood Cliffs, NJ: Prentice-Hall, 1984.
3. Stallings, W., Operating Systems: Internals and Design Principles, 9th edition, Pearson Education, 2018.
4. Tanenbaum, A. S., Modern Operating Systems. 3rd edition. Pearson Education, 2007.

Suggested Practical List for the Operating System Paper (DSC04)

1. Usage of following commands: ls, pwd, cat, who, rm, mkdir, rmdir,cd.
2. Usage of following commands: cal, cat(append), cat(concatenate), mv, cp, man, date.
3. Usage of following commands: chmod, grep, bc.
4. Write a shell script to display date in the mm/dd/yy format.
5. Write a shell script to display the multiplication table any number.
6. Write a shell script to find the factorial of a given number.
7. Program to show the pyramid of special character "*".
8. Write a shell script to find the sum of digits of a given number.
9. Write a shell script to perform the tasks of basic calculator.
10. Write a shell script to find the power of a given number.
11. Write a shell script to check whether the number is Armstrong or not.
12. Write a shell script to find the GCD (greatest common divisor) of two numbers.
13. Write a shell script to check if the number entered at the command line is prime or not.
14. Write a shell script to display on the screen sorted output of "who" command along with the total number of users.
15. Write a shell script to accept a login name. If not a valid login name display message – "Entered login name is invalid".
16. Write a shell script to compare two files and if found equal asks the user to delete the duplicate file.
17. Write a shell script to merge the contents of three files, sort the contents and then display them page by page.
18. Write a shell script to check whether the file have all the permissions or not.
19. Write a shell script to modify "cal" command to display calendars of the specified months.
20. Write a shell script to modify "cal" command to display calendars of the specified range of months.