

## BSCS03: Operating Systems(2020 ONWARDS)

### TEACHING GUIDE-LINES

Unit	Topic	Contents	Reference	No. of Lectures
1	<b>Introduction:</b> Operating systems, System software, Operating system resources, Operating System as resource manager	1.1	[1] or [2]	2
2	<b>Types of Operating Systems and Organization:</b> Multiprogramming, batch, time sharing operating systems, personal computers & workstations. Basic OS functions, mechanisms of requesting operating system services – system calls and system programs.	1.2, 1.3.1 ,1.3.2, 1.4-1.9  2.1-2.5, 2.7.1- 2.7.3	[1] or [2]	8
3	<b>Processor Management:</b> Distinction between program and process, process address space, process states, process scheduling algorithms, process schedulers.	3.1-3.3	[1] or [2]	10
		6.1-6.3  Or	[1]	
		5.1- 5.3	[2]	
4	<b>Memory Management:</b> Mapping logical address space to physical address space, fixed partition, variable partition, paging, segmentation, virtual memory.	8.1-8.5  9.1-9.2	[1] or [2]	10

5	<b>File and Input / Output Device Management:</b> Classification of I/O devices and I/O Handling ,file systems services, directory structure, disk storage.	10.1,10.2 11.3 upto 11.3.5	[1]	8
		OR 10.3 upto 10.3.5 12.1, 12.2	[2]	
6	<b>Shell scripting:</b> 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)	[3]	10
			<b>Total</b>	<b>48</b>

#### References:

- [1] A Silberschatz, P.B. Galvin, G. Gagne, **Operating Systems Concepts**, 9<sup>th</sup> Edition, John Wiley Publications. (**INTERNATIONAL EDITION PRINTED IN USA**)
- [2] A Silberschatz, P.B. Galvin, G. Gagne, **Operating Systems Concepts**, 9<sup>th</sup> Edition, John Wiley Publications. (**2016 INDIAN EDITION PRINTED IN INDIA**)
- [3] Unix: Concepts and Applications, Sumitabha Das, TMH, 4<sup>th</sup> Edition, 2009.

1. Usage of following commands: ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd.
2. Usage of following commands: cal, cat(append), cat(concatenate), mv, cp, man, date.
3. Usage of following commands: chmod, grep, tput (clear, highlight), 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.