

Course: B.SC.(Physical Sciences)

Semester-III

Subject: Operating System

Marks:75 Theory+25 Internal Assessment

Week	Topic
Week 1	Introduction: System Software, Resource Abstraction, OS strategies. Types of operating systems - Multiprogramming, Batch, Time Sharing, Single user and multiuser, Process Control & Real Time Systems.
Week 2	Factors in operating system design, basic OS functions, implementation consideration, process modes
Week3	Methods of requesting system services – system calls and system programs
Week4	System view of the process and resources, initiating the OS, process address space (Assignment-1)
Week5	Process abstraction, resource abstraction,
Week6	Process hierarchy, Thread model (Assignment-2)
Week7	Scheduling: Scheduling Mechanisms, Strategy selection,
Week8	Non-pre-emptive and pre-emptive strategies.
Week9	Mapping address space to memory space, memory allocation strategies, (TEST-1)
Week10	Fixed partition, variable partition, paging, virtual memory
Week11	Shell and various type of shell, Various editors present in linux Different modes of operation in vi editor What is shell script, Writing and executing the shell script Shell variable (user defined and system variables) System calls, Using system calls Pipes and Filters
Week12	Decision making in Shell Scripts (If else, switch), Loops in she Functions Utility programs (cut, paste, join, tr , uniq utilities) Pattern matching utility (grep)
Week13	(TEST-2) and Revision
Week14	Revision

Software Lab based on Operating Systems

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 check if the number entered at the command line is prime or not.
5. Write a shell script to modify “cal” command to display calendars of the specified months.
6. Write a shell script to modify “cal” command to display calendars of the specified range of months.

7. Write a shell script to accept a login name. If not a valid login name display message – “Entered login name is invalid”.
8. Write a shell script to display date in the mm/dd/yy format.
9. Write a shell script to display on the screen sorted output of “who” command along with the total number of users .
10. Write a shell script to display the multiplication table any number,
11. Write a shell script to compare two files and if found equal asks the user to delete the duplicate file.
12. Write a shell script to find the sum of digits of a given number.
13. Write a shell script to merge the contents of three files, sort the contents and then display them page by page.
14. Write a shell script to find the LCD(least common divisor) of two numbers.
15. Write a shell script to perform the tasks of basic calculator.
16. Write a shell script to find the power of a given number.
17. Write a shell script to find the factorial of a given number.
18. Write a shell script to check whether the number is Armstrong or not.
19. Write a shell script to check whether the file have all the permissions or not.
20. Program to show the pyramid of special character “*”