

Semester Lecture Plan		
Name of the college: Government College of Arts, Science and Commerce, Sanquelim - Goa		
Name of Faculty: Amar Naik / Shubham Naik	Subject: Computer Science	Division:
Paper code: CSC 205 Operating system Labs	Program/Course: S.Y.Bsc. Total Lectures: 15	
Academic year: 2024- 2025	Semester: IV	
Course Objectives: This course is intended to: 1. To understand how to use commands in an operating system. 2. To code and use shell script programs. 3. To code and use process management using system calls.		
Course Outcomes Students will, 1. Understand how to use commands in operating system. 2. Apply and code programs using shell programming. 3. Apply and code process management using system calls.		
Student learning outcomes To understand the basics of Linux commands To understand the basics of Shell Programming To understand the basics of editors used in linux To understand the basics of Process management		

Month	Lectures		No. of lectures allotted	Topic, Subtopic to be covered	Experiment/Assignment	ICT Tools	Reference books
	From:	To:					
Dec	09-12-2024	14-12-2024	4	1. Working with Linux Operating System <ul style="list-style-type: none"> • Installation of Linux Operating System • Linux commands <ul style="list-style-type: none"> a. Directory handling utilities: cd, mkdir, rmdir, mv, pwd 	Experiments	Powerpoint presentation	1. Sumitabha Das (2017). UNIX Concepts and Applications. Tata McGraw Hill, India.
	16-12-2024	21-12-2024	4	<ul style="list-style-type: none"> b. Basic File manipulation utilities: cat, cp, ls, mv, rm, chmod, chown, find, cat, more, head, tail, cmp, wc, touch, pr c. General purpose utilities: date, history, man, who, whoami, uptime, finger, cal, uname, tree, bc, tar, zip 	Experiments		
JAN	02-01-2025	04-01-2025	4	<ul style="list-style-type: none"> d. String manipulation utilites: grep, egrep, cut, paste, tr, sort, rev, awk, sed e. Process utilities: ps, pid, ppid, tty, time, kill, exit 	Experiments		

	06-01-2025	11-01-2025	4	f. Network utilities: ping, ifconfig, netstat, hostname, traceroute, telnet, ssh, mount • Vi Editor • Advanced Filtering Commands: awk, sed	Experiments		
	13-01-2025	18-01-2025	4	2. Shell Programming • To check if a given file exists in the current directory. • To calculate the sum of the first 10 natural numbers. • To find and display the largest number among three given numbers. • Accepts a filename as an argument and displays its content.	Experiments		
	20-01-2025	25-01-2025	4	• To calculate the factorial of a given number. • Takes two numbers as input from user and performs basic arithmetic operations (addition, subtraction, multiplication, division). • To count the number of lines in a given text file. • Renames all files in a directory with a specified file extension.	Experiments		

	27-01-2025	01-02-2025	4	<ul style="list-style-type: none"> ● To concatenate two files and save the result in a new file. ● Check if a user is logged in and displays a message accordingly. ● To find and display the smallest and largest elements in an array. ● Searches for a specific pattern in a given text file. 	Experiments		
FEB	03-02-2025	08-02-2025	4	<ul style="list-style-type: none"> ● To find and display all the hidden files in a directory. ● Sorts a list of numbers/text in ascending/descending order. ● Perform basic string manipulation operations (concatenation, substring, length). ● Counts the number of files and directories in the current directory. 	Experiments		
	10-02-2025	15-02-2025	4	<ul style="list-style-type: none"> ● To find and display the process ID of a specific running process. ● To check if an existing file is a read-only or write-only. ● To automate the backup of a specified directory. ● Monitors the free disk space and sends an alert if it falls below a certain threshold. 	Experiments		

	17-02-2025	22-02-2025	4	<ul style="list-style-type: none"> ● Checks if a given user exists or not on the system. ● Generates a random password with certain criteria. ● Monitors changes in a specific directory and logs them to a file. ● Checks the availability of a remote server. 	Experiments		
	24-02-2025	01-03-2025	4	<ul style="list-style-type: none"> ● Display the process ID of the process using the most memory. ● Displays information about the operating system. ● To automate the installation of a set of packages. ● To find and delete files older than a specified number of days in a directory. 	Experiments		
MAR	03-03-2025	08-03-2025	4	<ul style="list-style-type: none"> ● Generate a report of user login activity for the last 24 hours. ● Generate a report of the most frequently used commands by users. ● To find and replace a specific pattern in multiple files within a directory. 	Experiments		

	10-03-2025	15-03-2025	4	<ul style="list-style-type: none"> ● Convert a given text file into HTML format. ● Archive and compress log files older than a certain date. ● Automate the cleanup of temporary files and directories on the system. ● Input a file containing two columns representing time in seconds (as X axis) and a 	Experiments		
	17-03-2025	22-03-2025	4	3. Process Management <ul style="list-style-type: none"> ● Create a file, allow the user to write data to the file, display the contents and close the file using system calls ● Copying a file into another file using system calls. ● Display the file details including owner, size, access permissions and file access time using system calls 	Experiments		
	24-03-2025	29-03-2025	4	<ul style="list-style-type: none"> ● Creation of a child process and allow the parent to display “parent” and the child to display “child” on the screen ● Creation of a child process to perform a task and before terminating, the parent waits for the child to finish its task 	Experiments		
APR	31-03-2025	05-04-2025	4	<ul style="list-style-type: none"> ● Creation of a Zombie Process ● Creation of an Orphan Process ● Simulate the commands using system calls: echo, ls, cp, mkdir, rm, cat, chmod, mv, grep 	Experiments		

	07-04-2025	11-04-2025	4	Revision	Experiments		
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Assessment Rubrics	Component	Max Marks
	ISA 1	5
	ISA 2	5
	ISA 3	5
	Practical	40
	Project	NA
	SEE	NA