Lecture Plan

Name of the college: Government College of Arts, Science and Commerce, Sanquelim- Goa

Name of Faculty: Amar R. Naik	**Subject: Computer Science**	
Paper code: CSC-209: Computer Organization and Operating System Lab	**Program:** SYBSc	**Division: -**
Academic year: 2025 - 2026	**Semester: IV**	**Total Lectures: 60 (2P)**

Course Objectives:

1. To understand 8086 architecture and learn the instruction set.
2. To write assembly language programs to solve problems.
3. To understand how to use commands in an operating system.
4. To code and use shell script programs.
5. To code and use process management using system calls.

Course Outcomes: After the completion of the course, the students will be able to:

CO1. Understand the basic 8086 architecture.
CO2. Remember 8086 instruction set and assembly language program structure.
CO3. Execute Linux commands and create shell scripts.
CO4. Perform process management.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
December 2025	01-12-2025	06-12-2025	4	Introduction to 8086 architecture and instruction set Find the sum of 1 + 2 + 3 + ……+ n	Write and execute an 8086 program to compute the sum of first *n* natural numbers.	PPT, LCD Projector	Douglas Hall, *Microprocessors and Interfacing*, 3rd Edition, McGraw Hill Education

	08-12-2025	13-12-2025	4	Display the multiplication table of a number Store and retrieve numbers from memory Block Transfer	Develop assembly programs for multiplication table generation and block data transfer.	PPT, LCD Projector	Douglas Hall, *Microprocessors and Interfacing*, 3rd Edition, McGraw Hill Education
	15-12-2025	20-12-2025	2	Sort the numbers stored in the memory(Any two methods) Searching methods	Implement sorting and searching techniques using assembly language.	PPT, LCD Projector	Douglas Hall, *Microprocessors and Interfacing*, 3rd Edition, McGraw Hill Education
	22-12-2025	23-12-2025	2	Masking of bits Counting of number of bits	Write programs to perform bit masking and bit count operations.	PPT, LCD Projector	Douglas Hall, *Microprocessors and Interfacing*, 3rd Edition, McGraw Hill Education
January 2026	02-01-2025	03-01-2026	2	Count the number of even or odd numbers from a given set of numbers Check if the number is a palindrome	Develop assembly programs to identify even/odd numbers and check palindrome numbers.	PPT, LCD Projector	Douglas Hall, *Microprocessors and Interfacing*, 3rd Edition, McGraw Hill Education
	05-01-2026	10-01-2026	4	Count the number of positive and negative numbers from a given set of numbers Generate a series like 1,3,5,7,…….. up to n terms	Write programs to count positive/negative numbers and generate number series.	PPT, LCD Projector	Douglas Hall, *Microprocessors and Interfacing*, 3rd Edition, McGraw Hill Education
	12-01-2026	17-01-2026	4	Working with Linux Operating System Installation of Linux Operating System Linux commands a. Directory handling utilities: cd, mkdir, rmdir, mv, pwd b. File manipulation utilities: cat, cp, ls, mv, rm, chmod, chown, find, cat, more, head, tail, cmp, wc, touch, pr Intra Semester Assessment I	Perform Linux installation and execute basic directory and file handling commands.	PPT, LCD Projector	Sumitabha Das, *UNIX Concepts and Applications*, Tata McGraw Hill
	19-01-2026	24-01-2026	4	General purpose utilities: date, history, man, who, whoami, uptime, finger, cal, uname, tree, bc, tar, zip d. String manipulation utilites: grep, egrep, cut, paste, tr, sort, rev, awk, sed	Practice general-purpose and string manipulation utilities with sample inputs.	PPT, LCD Projector	Kenneth Rosen, *UNIX: The Complete Reference*, McGraw Hill

	26-01-2026	31-01-2026	4	Process utilities: ps, pid, ppid, tty, time, kill, exit f. Network utilities: ping, ifconfig, netstat, hostname, traceroute, telnet, ssh, mount, Vi Editor	Execute process, network utilities and perform basic text editing using Vi editor.	PPT, LCD Projector	Sumitabha Das, *UNIX Concepts and Applications*, Tata McGraw Hill
February 2026	02-02-2026	07-02-2026	4	To calculate the sum of the first 10 natural numbers. To find and display the largest number among three given numbers. 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 find and display the smallest and largest elements in an array. Perform basic string manipulation operations (concatenation, substring, length). Intra Semester Assessment II	Write shell scripts for arithmetic operations, arrays and string manipulation.	PPT, LCD Projector	Sumitabha Das, *UNIX Concepts and Applications*, Tata McGraw Hill
	09-02-2026	14-02-2026	4	To check if a given file exists in the current directory. Accepts a filename as an argument and displays its content. To count the number of lines in a given text file. To concatenate two files and save the result in a new file. Searches for a specific pattern in a given text file. To find and display all the hidden files in a directory.	Develop shell scripts for file handling and pattern matching operations.	PPT, LCD Projector	Kenneth Rosen, *UNIX: The Complete Reference*, McGraw Hill
	16-02-2026	21-02-2026	4	Renames all files in a directory with a specified file extension. Sorts a list of numbers/text in ascending/descending order. Counts the number of files and directories in the current directory.	Implement shell scripts for directory management and file operations.	PPT, LCD Projector	Kenneth Rosen, *UNIX: The Complete Reference*, McGraw Hill

				To find and replace a specific pattern in multiple files within a directory. To find and delete files older than a specified number of days in a directory.			
	23-02-2026	28-02-2026	4	Check if a user is logged in and displays a message accordingly. To find and display the process ID of a specific running process. Display the process ID of the process using the most memory. Checks if a given user exists or not on the system. Displays information about the operating system.	Write shell scripts for user, process and system information management.	PPT, LCD Projector	W. Richard Stevens & Steven A. Rago, *Advanced Programming in the UNIX Environment*, Addison-Wesley
March 2026	02-03-2026	07-03-2026	4	Generates a random password with certain criteria. Monitors changes in a specific directory and logs them to a file. Generate a report of user login activity for the last 24 hours. To automate the installation of a set of packages. Intra Semester Assessment III	Develop shell scripts for system monitoring and automation tasks.	PPT, LCD Projector	W. Richard Stevens & Steven A. Rago, *Advanced Programming in the UNIX Environment*, Addison-Wesley
	09-03-2026	14-03-2026	4	Comprehensive shell scripts integrating: File handling User/process management Text processing Debugging and optimization of shell scripts. Mini task-based scripts combining multiple command Intra Semester Assessment III	Implement integrated shell scripts combining file, process and text processing tasks.	PPT, LCD Projector	Sumitabha Das, *UNIX Concepts and Applications*, Tata McGraw Hill
	16-03-2026	21-03-2026	4	Revision and Practice		PPT, LCD Projector	
	23-03-2026	28-03-2026	4	Revision and Practice		PPT, LCD Projector	
	30-03-2026	31-03-2026	2	-			

* Assessment Rubrics

Component	Max Marks
ISA 1	5
ISA 2	5
ISA 3	5
Best 2 ISAs	
Practical Examination	40