NAME OFTHE FACULTY	:	Harish Kumar Kaushik
DISCIPLINE	:	Computer Engineering
SEMESTER	:	3rd
SUBJECT	:	OPERATING SYSTEMS
LESSON PLAN DURATION	:	15 weeks (04 Aug 2025 – 26 Nov 2025)

COURSE OUTCOMES

After undergoing the subject, the students will be able to:

CO1: Explain various types and services of operating system

CO2: Categorize different types of schedulers and scheduling algorithms.

CO4: Define deadlock and the various ways to recover from deadlock

CO5: Describe memory management and virtual memory.

CO6: Practice general commands, filters, shell scripts in Linux

Week	Day	Theory	Day	Practical
1	1	**UNIT I** **Overview of Operating Systems** Definition of Operating Systems, Types of Operating Systems	G1	1. Demonstration of all the controls provided in windows control panel.
	2	Operating System Services, User operating system interface, System Calls	G2	1. Demonstration of all the controls provided in windows control panel.
	3	Types of System Calls, System Programs, Operating System Structure	G1	2. Exercise on Basics of windows.
			G2	2. Exercise on Basics of windows.
2	1	Virtual Machine, Benefits of Virtual Machine	G1	2. Exercise on Basics of windows.
	2	Revision	G2	2. Exercise on Basics of windows.
	3	Revision	G1	3. Installation of Linux Operating System.
			G2	3. Installation of Linux Operating System.
3	1	**UNIT II** **Process Management and Deadlocks** Process concept, Process State, Process Control Block	G1	4. Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir.
	2	Scheduling Queues, Scheduler, Job Scheduler, Process Scheduler, Context Switch, Operations on Processes	G2	4. Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir.
	3	Interprocess Communication, Shared Memory Systems, Message-Passing Systems	G1	5. Usage of File Management commands of Linux: cat
			G2	5. Usage of File Management commands of Linux: cat
4	1	CPU Scheduler, Scheduling Criteria, Scheduling Algorithms, Preemptive and Non Preemptive	G1	6. Use the general purpose commands of Linux: wc, od, lp, cal , date, who, whoami.

	2	First come first serve (FCFS), Shortest Job first (SJF), Round Robin (RR)	G2	6. Use the general purpose commands of Linux: wc, od, lp, cal , date, who, whoami.
	3	Multiprocessor scheduling, Process Synchronization.	G1	7. Using the simple filters: pr, head, tail, cut, paste, nl, sort.
			G2	7. Using the simple filters: pr, head, tail, cut, paste, nl, sort.
5	1	Deadlock, Conditions for Dead lock, Methods for handling deadlocks, De a d Prevention, Deadlock	G1	8. Communication Commands: news
	2	Avoidance, Deadlock detection, Recovery from deadlock. Revision	G2	8. Communication Commands: news
	3	Revision	G1	9. Write a shell program that finds the factorial of a number.
			G2	9. Write a shell program that finds the factorial of a number.
6	1	**UNIT III** **Memory Management Function** Definition – Logical and Physical address Space	G1	10. Write a shell program that finds whether a given number is prime or not.
	2	Swapping, Memory allocation, Contiguous Memory allocation	G2	10. Write a shell program that finds whether a given number is prime or not.
	3	Fixed and variable partition, Internal and External fragmentation and Compaction	G1	11. Write a shell program to find the average of three numbers.
			G2	11. Write a shell program to find the average of three numbers.
7	1	Paging – Principle of operation, Page allocation	G1	12. Write a shell program that will convert all the text of the file from lowercase to uppercase.
	2	Hardware support for paging, Protection and sharing	G2	12. Write a shell program that will convert all the text of the file from lowercase to uppercase.
	3	Disadvantages of paging, Segmentation, Virtual Memory	G1	Revision
			G2	Revision
8	1	Revision	G1	9. Write a shell program that finds the factorial of a number.
	2	**UNIT IV** **I/O Management Functions and File Management** Dedicated Devices, Shared Devices, I/O Devices	G2	9. Write a shell program that finds the factorial of a number.
	3	Storage Devices, Buffering, Spooling	G1	10. Write a shell program that finds whether a given number is prime or not.

			G2	10. Write a shell program that finds whether a given number is prime or not.
9	1	Types of File System; Simple file system, Basic file system	G1	11. Write a shell program to find the average of three numbers.
	2	Logical file system, Physical file system	G2	11. Write a shell program to find the average of three numbers.
	3	Various Methods of Allocating Disk Space	G1	12. Write a shell program that will convert all the text of the file from lowercase to uppercase.
			G2	12. Write a shell program that will convert all the text of the file from lowercase to uppercase.
10	1	Revision	G1	Revision
	2	**UNIT V** **Linux Operating System** History of Linux and Unix, Linux Overview, Structure of Linux, Linux releases	G2	Revision
	3	Open Linux, Linux System Requirements, Linux Commands and Filters	G1	1. Demonstration of all the controls provided in windows control panel.
			G2	1. Demonstration of all the controls provided in windows control panel.
11	1	mkdir, cd, rmdir, pwd, ls, who, whoami, date, cat, chmod, cp, mv, rm, pg, more, pr, tail, head	G1	2. Exercise on Basics of windows.
	2	cut, paste, nl, grep, wc, sort, kill, write, talk, mseg, wall, merge, mail, news	G2	2. Exercise on Basics of windows.
	3	Shell: concepts of command options, input, output	G1	3. Installation of Linux Operating System.
			G2	3. Installation of Linux Operating System.
12	1	redirection, pipes, redirecting and piping with standard errors	G1	4. Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir.
	2	Shell scripts,	G2	4. Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir.
	3	vi editing commands	G1	5. Usage of File Management commands of Linux: cat
			G2	5. Usage of File Management commands of Linux: cat
13	1	Revision	G1	6. Use the general purpose commands of Linux: wc, od, lp, cal , date, who, whoami.

	2	Revision	G2	6. Use the general purpose commands of Linux: wc, od, lp, cal , date, who, whoami.
	3	Revision	G1	7. Using the simple filters: pr, head, tail, cut, paste, nl, sort.
			G2	7. Using the simple filters: pr, head, tail, cut, paste, nl, sort.
14	1	Revision	G1	8. Communication Commands: news
	2	Revision	G2	8. Communication Commands: news
	3	Revision	G1	9. Write a shell program that finds the factorial of a number.
			G2	9. Write a shell program that finds the factorial of a number.
15	1	Revision	G1	Revision
	2	Revision	G2	Revision
	3	Revision	G1	Revision
			G2	Revision