

UNIVERSITY OF MADRAS  
MASTER OF COMPUTER APPLICATIONS (MCA) DEGREE PROGRAMME  
SYLLABUS WITH EFFECT FROM 2023-2024

Title of the Paper	<b>Operating Systems and UNIX - Lab</b>		
Elective - II Practical - II	I Year & I Semester	Credit:3	435E1F

#### Course Objectives

- To enable the students to run various UNIX commands.
- To develop and implement the shell scripts on UNIX OS.
- To develop and implement the shell script for GUI processing.
- To implement Inter process communication.
- To implement Deadlock detection algorithm.
- To implement various process scheduling algorithms.

#### List of Programs

- 1) IPC using pipes.
- 2) Implementations of wait and signal using counting semaphores.
- 3) Signalling processes.
- 4) Deadlock detection (for processes passing messages)
- 5) Process Scheduling: FCFS
- 6) Process Scheduling: Least Frequently Used.
- 7) Process Scheduling: Round Robin.
- 8) Two Process Mutual Exclusion.
- 9) Shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions
- 10) Shell program to simulate cat' command and wc command to count the number of lines and number of words in the given input file.
- 11) grep command that Count the number of blank lines in the file1 and Select the lines from the file1 that have the string, "UNIX".
- 12) sed command that Print lines numbers of lines beginning with "O" and swap the first and second word in each line in the file
- 13) awk script to Count the number of lines in a file that do not contain vowels and find the number of characters, words and lines in a file.
- 14) Shell script to find out whether the given number is prime number or not

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- 15) Shell program to find out factorial of the given number
- 16) Shell program to find out reverse string of the given string and check the given string is palindrome or not
- 17) Shell script to search an element in the list
- 18) Shell script to implement menu driven program to display list of users who are currently working in the system, copying files (cp command), rename a file, list of files in the directory and quit option.( Hint: use case structure)

**Course Outcomes**

On the successful completion of the course, students will be able to

Course Outcome	Description	Knowledge Level
CO1	To understand, apply and analyze the concepts and methodology of Unix shell programming.	K1-K6
CO2	To comprehend, impart and apply fundamentals of control structure and script controls.	K1-K6
CO3	To understand, analyses and evaluate the functions, graphical desktop interface and editors.	K1-K6
CO4	To collaborate, apply and review the concepts and methodology of regular expression and advanced gawk.	K1-K6
CO5	To comprehend, use and analyze the advance concepts such as alternate shell script, dy and bash scripting	K1-K6

K1- Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

**Mapping with Programme Outcomes:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	S	S	-	S	-	-	-	M	-	-	-
CO2	S	S	S	-	S	-	-	-	M	-	-	-
CO3	S	S	S	-	S	-	-	-	M	S	S	S
CO4	S	S	S	-	S	-	-	-	M	-	-	-
CO5	S	S	S	-	S	-	-	-	M	S	S	S

S- Strong; M-Medium; L-Low