



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF INFORMATION TECHNOLOGY

II Year –I I Semester		L	T	P	C
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FOSS LAB					

Course Objectives:

This Course will enable students to

- provide introduction to UNIX operating system and its File System.
- develop the ability to formulate Regular Expressions and use them for Pattern Matching.
- gain an understanding of important aspects related to the Shell and the Process.
- provide a comprehensive introduction to Shell Programming, Services and Utilities.

Course Outcomes:

At the end of the course the student will be able to:

- Demonstrate UNIX commands for file handling and process control
- Construct regular expressions for pattern matching and apply them to various filters for a specific task.
- Analyze a given problem and apply requisite facets of shell programming in order to devise a shell script to solve the problem

Programs:

1. Session-1

- Log into the system
- Use vi editor to create a file called myfile.txt which contains some text.
- correct typing errors during creation.
- Save the file
- logout of the system

Session-2

- Log into the system
- open the file created in session 1
- Add some text
- Change some text
- Delete some text
- Save the Changes
- Logout of the system

2.a) Log into the system

b) Use the cat command to create a file containing the following data. Call it mytable use tabs to separate the fields.

```
1425 Ravi 15.65
4320 Ramu 26.27
6830 Sita 36.15
1450 Raju 21.86
```

c) Use the cat command to display the file, mytable

d) Use the vi command to correct any errors in the file, mytable.



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- e) Use the sort command to sort the file my table according to the first field. Call the sorted file my table (same name)
- f) Print the file my table
- g) Use the cut and paste commands to swap fields 2 and 3 of my table. Call it my table (same name)
- h) Print the new file, mytable
- i) Logout of the system.

3.A)

- a) Login to the system
- b) Use the appropriate command to determine your login shell
- c) Use the /etc/passwd file to verify the result of step b.
- d) Use the who command and redirect the result to a file called myfile1. Use the more command to see the contents of myfile1.
- e) Use the date and who commands in sequence (in one line) such that the output of date will display on the screen and the output of who will be redirected to a file called myfile2. Use the more command to check the contents of myfile2.

B) Write a sed command that deletes the first character in each line in a file.

- b) Write a sed command that deletes the character before the last character in each line in a file.
- c) Write a sed command that swaps the first and second words in each line in a file.

- 4. a) Pipe your /etc/passwd file to awk, and print out the home directory of each user.
- b) Develop an interactive grep script that asks for a word and a file name and then tells how many lines contain that word.
- c) Repeat
- d) Part using awk

5. a) Write a shell script that takes a command –line argument and reports on whether it is directory, a file, or something else

- b) Write a shell script that accepts one or more file name as arguments and converts all of them to uppercase, provided they exist in the current directory.
- c) Write a shell script that determines the period for which a specified user is working on the system.

- 6. a) Write a shell script that accepts a file name starting and ending line numbers as arguments and displays all the lines between the given line numbers.
- b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

7. a) Write a shell script that computes the gross salary of a employee according to the following rules:

- i) If basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic.
- ii) If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic



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The basic salary is entered interactively through the key board.

b) Write a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number.

8. a) Write an interactive file-handling shell program. Let it offer the user the choice of copying, removing, renaming, or linking files. Once the user has made a choice, have the program ask the user for the necessary information, such as the file name, new name and so on.

b) Write shell script that takes a login name as command – line argument and reports when that person logs in

c) Write a shell script which receives two file names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.

9. a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.

b) Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file.

c) Write a shell script to perform the following string operations:

i) To extract a sub-string from a given string.

ii) To find the length of a given string.

10. Write a C program that takes one or more file or directory names as command line input and reports the following information on the file:

i) File type ii) Number of links iii) Read, write and execute permissions

iv) Time of last access

(Note : Use stat/fstat system calls)

11. Write C programs that simulate the following unix commands:

a) mv b) cp (Use system calls)

12. Write a C program that simulates ls Command (Use system calls / directory API)

13. Write a shell script to accept the name of the file from standard input and perform the following tests on it a) File executable b) File readable c) File writable d) Both readable & writable

14. Write an awk program to print sum, avg of students marks list

15. Write an awk program which will find maximum word and its length in the given input File