ABILITY ENCHANCEMENT COURSE (AEC)

Code: BCS456E   **Course: UNIX and Shell Programming**
Credits: 1   **CIE: 50 Marks**
L: T:P - 0:0:2   **SEE: NA**
SEE Hours: NA   **Total Marks: 100**

Prerequisites if any	NIL
Learning objectives	1. Understand the Unix architecture, file system, and multi-user environment. 2. Manage file permissions and ownership effectively, Write and execute basic shell scripts using variables, loops, and conditionals.

Course Outcomes:

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

COs	Course Outcomes	Bloom's Level
CO1	To understand the UNIX environment with basic commands, file systems and multi-user environment.	Apply
CO2	To understand the concepts of filters and regular expressions, acquire knowledge about Regular expressions and grep.	Apply
CO3	To acquire knowledge about awk command and to acquire programming skills in shell scripts.	Apply

Mapping with POs and PSOs:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	1	-	-	-	1	-	3	1	1	3
CO2	3	2	-	2	1	-	-	2	1	-	3	1	2	3
CO3	2	1	1	-	1	-	-	-	1	-	3	1	3	2

Mapping Strength: Strong– 3   Medium – 2   Low – 1

List of Experiments

Sl. No.	CO's	Experiments	No. of Practical Hours
1	CO1	Illustrate the Usage of basic Unix Shell Commands: *cal, who, whoami, passwd, echo, man, lpr.* Other commands*: tty, stty, script, uname, bc* (calculator).	1
2	CO1	Illustrate the functionality of the following with appropriate commands (i) Wildcards, (ii) Different types of File Pathname	1
3	CO1	Demonstrate the workings of commands *pwd, ls, mkdir, rmdir, cd, vi, more, lpr, cp, mv, ln, rm, find.*	1
4	CO2	Use the security and file permission commands *group, chmod,* symbolic and octal codes, *umask, chown, chgrp* to demonstrate the multi-user environment.	1
5	CO2	Implement the Filter command such as *cat, cmp, comm, cut, diff, paste, head, sort, tail, tr, wc.*	2
6	CO2	Implement the following with *grep* command: (i) Case insensitive search, Print n Specific Lines from a File. (ii) Displaying the Count of Number of Matches. (iii) Display the File Names that Matches the Pattern. (iv) Checking for the Whole Words in a File. (v) Displaying only the matched pattern. (vi) Search Recursively for a Pattern in the Directory. (vii) Matching the Lines that End with a String (viii) Inverting the Pattern Match	1
7	CO3	Write an awk script to compute gross salary of an employee accordingly to rule given below. If basic salary is < 10000 then HRA=15% of basic & DA=45% of basic If basic salary is >=10000 then HRA=20% of basic & DA=50% of basic.	2
8	CO3	Write an awk script that accepts date argument in the form of dd-mm-yy and displays it in the form if month, day and year. The script should check the validity of the argument and in the case of error, display a suitable message.	2
9	CO3	Shell Programming: shell script exercise based on following: •Positional parameters • Arithmetic • If-then-fi, if-then-else-fi, nested if-else • Logical operators • Else + if equals elif, case structure • While ,for loop	2
10	CO3	Write a Shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.	2
		Total number of practical hours	15

Textbook:

1. UNIX and Shell Programming – A Textbook by Behrouz A Forouzan, Richard F Gilberg, Cengage Learning, I Edition, 2003.

Reference Book:

1. The Complete Reference UNIX by Kenneth Rosen, Douglas Host, James Farber and Richard Rosinski, Tata McGraw- Hill, Edition 2000.

2. E-book: Shell Scripting – Expert Recipes for Linux, Bash and More by Steve Parker, Wrox Publications.

3. E-book: Linux Shell Scripting Cookbook by Shantanu Tushar and Sharath Lakshman, II edition, Packt Publications, 2013