

UNIX AND SHELL PROGRAMMING

(Common to CSE&IT)

Course Code :13CT1109

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Course Educational Objectives:

The main object of this subject is to teach the students

- ❖ To use the commands according to user requirements.
- ❖ To write Shell scripts to perform the given task.
- ❖ To write their own programs in UNIX.
- ❖ To write AWK programs.
- ❖ It is powerful O.S. which will be used in servers, hence while working in industry this knowledge should be helpful.

Course Outcomes:

At the end of the course student would be able to

- ❖ Work on unix operating system.
- ❖ Develop programs that run on unix operating system.
- ❖ Develop shell programs in UNIX.
- ❖ Use unix operating system on servers.
- ❖ Use the system calls for file management.

UNIT-I

(12 Lectures)

INTRODUCTION TO UNIX:

The UNIX Operating System, The UNIX Architecture, Features of UNIX, Internal And External Commands, Command Structure.

GENERAL-PURPOSE UTILITIES:

cal, date, echo, printf, bc, script, passwd, PATH, who, uname, tty, stty, pwd, cd, mkdir, rmdir, od.

HANDLING FILES:

The File System, cat, cp, rm, mv, more, file, ls, wc, pg, cmp, comm, diff, gzip, tar, zip, df, du, mount, umount, chmod, The vi editor ,security by file Permissions.

NETWORKING COMMANDS:

ping, telnet, ftp, finger, arp, rlogin.

UNIT-II**(12 Lectures)****INTRODUCTION TO SHELLS:**

Unix Session, Standard Streams, Redirection, Pipes, Tee Command, Command Execution, Command-Line Editing, Quotes, Command Substitution, Job Control, Aliases, Variables, Predefined Variables, Options, Shell Edition Environment Customization. **FILTERS:** Filters, Concatenating files, Display Beginning and End of files, Cut and Paste, Sorting, Translating Characters, Ordering a File, uniq.

UNIT-III**(12 Lectures)**

REGULAR EXPRESSIONS: Atoms, operators

GREP: Operation, grep Family, Searching for File Content.

SED: Scripts, Operation, Addresses, commands, Applications, grep and sed.

AWK: Execution, Fields and Records, Scripts, Operations, Patterns, Actions, Associative Arrays, String Functions, String Functions, Mathematical Functions, User – Defined Functions, Using System commands in awk, Applications, awk and grep, sed and awk.

UNIT-IV**(12 Lectures)****INTERACTIVE KORN SHELL:**

Korn Shell Features, Two Special Files, Variables, Output, Input, Exit Status of a Command, eval Command, Environmental Variables, Options, Startup Scripts, Command History, Command Execution Process.

KORN SHELL PROGRAMMING:

Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

UNIT-V**(12 Lectures)****INTERACTIVE C SHELL:**

C shell features, Two Special Files, Variables, Output, Input, Exit Status of a Command, eval Command, Environmental Variables, On-Off Variables, Startup and Shutdown Scripts, Command History, Command Execution Scripts.

C SHELL PROGRAMMING:

Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

FILEMANAGEMENT:

File Structures, System Calls for File Management – create, open, close, read, write, lseek, link, symlink, unlink, stat, fstat, lstat, chmod, chown, Directory API – opendir, readdir, closedir, mkdir, rmdir, umask.

TEXT BOOKS:

1. Sumitabha Das, “*Unix Concepts And Applications*”, 4thEdition. TMH, 2006. (1, 2 units)
2. Behrouz A. Forouzan, Richard F. Gilbery, “*Unix and shell Programming*”, 1stEdition, Cengage Learning India, 2003.

REFERENCES:

1. Graham Glass, King Ables, “*Unix for programmers and users*”, 3rd Edition, Pearson Education, 2009.
2. N.B Venkateswarlu, “*Advanced Unix programming*”, 2ndEdition, BS Publications, 2010.
3. Yashwanth Kanitkar, “*Unix Shell programming*”, 1stEdition, BPB Publisher, 2010.

