Subject Code 15CS35 Number of Lecture Hours/Week 15CI Exam Marks 10 CREDITS - 04 Course objectives: This course will enable students to Understand the UNIX Architecture, File systems and use of basic Commands. Understand Shell Programming and to write shell scripts. Understand Shell Programming and to write shell scripts. Understand and analyze UNIX System calls, Process Creation, Control & Relationship. Teaching Hours Introduction, Brief history. Unix Components/Architecture. Features of Unix. The UNIX Environment and UNIX Structure, Posix and Single Unix specification. The login prompt. Programming of some basic commands such as echo, printf, Is, who, date, passwd, cal, Combining commands. Meaning of Internal and external commands. The type more about Unix commands and using Unix online manual pages. The man with keyword programming, displaying its characteristics and setting characteristics. Managing the non-niform behaviour of terminals and keyboards. The root login. Becoming the super user: su command. The /etc/passwd and /etc/shadow files. Commands to add, modify and delete sers. Introduction, Brief history. Unix Components/Architecture. Features of Unix. The UNIX Environment and UNIX Structure, Posix and Single Unix specification. The login prompt. Introduction, Brief history. Unix Components/Architecture. Features of Unix. The UNIX Environment and UNIX Structure, Posix and Single Unix specification. The login prompt. Introduction, Brief history. Unix Components/Architecture. Features of Unix. The UNIX Environment and UNIX Structure, Posix and Single Unix specification. The login prompt. Introduction, Brief history. Unix Components/Architecture. Features of Unix. The UNIX Environment and UNIX Structure, Posix and Single Unix specification. The login prompt. Introduction, Brief history. Unix Components/Architecture. Features of Unix. The UNIX Environment and Unix Structure. Command arguments and Unix Structure. Command arguments and Unix Structure. Command arguments and Unix Structure. Co	[As pe	r Choice Based Credit fective from the acader	PROGRAMMI System (CBCS) scheme nic year 2015 -2016)	NG		
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Module - 3

The vi editor. Basics. The .exrc file. Different ways of invoking and quitting vi. Different modes of vi. Input mode commands. Command mode commands. The ex mode commands. Illustrative examples Navigation commands. Repeat command. Pattern searching. The search and replace command. The set, map and abbr commands. Simple examples using

10Hours

The shells interpretive cycle. Wild cards and file name generation. Removing the special meanings of wild cards. Three standard files and redirection. Connecting commands: Pipe. Splitting the output: tee. Command substitution. Basic and Extended regular expressions. The grep, egrep. Typical examples involving different regular expressions.

Topics from chapters 7, 8 and 13 of text book 1. Topics from chapter 2 and 9,10 of Module-4

Shell programming. Ordinary and environment variables. The .profile. Read and readonly commands. Command line arguments. exit and exit status of a command. Logical operators for conditional execution. The test command and its shortcut. The if, while, for and case control statements. The set and shift commands and handling positional parameters. The here (<<) document and trap command. Simple shell program examples. File inodes and the inode structure. File links - hard and soft links. Filters. Head and tail commands. Cut and paste commands. The sort command and its usage with different options. The umask and default file permissions. Two special files /dev/null and /dev/tty.

10Hours

Topics from chapter 11, 12, 14 of text book 1, chapter 17 from text book2

Module-5

Meaning of a process. Mechanism of process creation. Parent and child process. The ps command with its options. Executing a command at a specified point of time: at command. Executing a command periodically: cron command and the crontab file.. Signals. The nice and nohup commands. Background processes. The bg and fg command. The kill command. The find command with illustrative example.

10Hours

Structure of a perl script. Running a perl script. Variables and operators. String handling functions. Default variables - \$_ and \$. - representing the current line and current line number. The range operator. Chop() and chomp() functions. Lists and arrays. The @variable. The splice operator, push(), pop(), split() and join(). File handles and handling file - using open(), close() and die () functions.. Associative arrays - keys and value functions. Overview of decision making loop control structures - the foreach. Regular expressions simple and multiple search patterns. The match and substitute operators. Defining and

Topics from chapter 9 and 19 of text book 1. Topics from chapter 11 of reference

Course outcomes:

After studying this course, students will be able to:

- Explain multi user OS UNIX and its basic features
- Interpret UNIX Commands, Shell basics, and shell environments
- Design and develop shell programming, communication, System calls and terminology.
- Design and develop UNIX File I/O and UNIX Processes.
- Perl script writing

Graduate Attributes (as per NBA)

- Engineering Knowledge
- 2. Environment and Sustainability
- 3. Design/Development of Solutions

Question paper pattern:

The question paper will have ten questions.

There will be 2 questions from each module.

Each question will have questions covering all the topics under a module.

The students will have to answer 5 full questions, selecting one full question from each module.

Text Books:

- 1. Sumitabha Das., Unix Concepts and Applications., 4th Edition., Tata McGraw Hill
- 2. Behrouz A. Forouzan, Richard F. Gilberg: UNIX and Shell Programming- Cengage Learning India Edition. 2009.

Reference Books:

- 1. M.G. Venkatesh Murthy: UNIX & Shell Programming, Pearson Education.
- Richard Blum, Christine Bresnahan: Linux Command Line and Shell Scripting Bible, 2ndEdition, Wiley, 2014.

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