PESIT Bangalore South Campus

10CS44: UNIX & SHELL PROGRAMMING

Faculty name: Prof. Ajoy

No. of hours Specified: 52

Class No	Chapter Title/Reference Literature	Topics covered	Percentage of portion covered	
			Reference Chapter	Cumulative
1	UNIT #1: THE UNIX OS T1: page #:16-26,28-37,43-54,57-72, 74-94 R1:237-243	Brief History, Salient Features of a UNIX System	11.5%	11.5%
2		POSIX and the single UNIX specification, The UNIX Architecture, Locating the Commands, Internal and External Commands, Flexibility of Command Usage, man: Browsing and Manual Pages On-line, Understanding the man Documentation,		
3		cal: The Calendar, date: Displaying and System Date, echo: Displaying a message. Printf: An Alternative to echo, bc: The Calculator, Script: recording your Session,		
4		Passwd: Changing your Password, Who: Who are the Users ?, Uname: Knowing your Machine's characteristics, tty: Knowing your Terminal, sty: Displaying and setting terminal characteristics, The File, What's in a (File) name? The Parent-Child Relationship		
5		The HOME Variable: The HOME Directory, **pwd**: Checking your Current Directory, **cd** :Changing the Current Directory, mkdir: making Directories, **rmdir**: Removing Directories, Absolute Pathnames, Relative Pathnames, **ls**: Listing Directory Contents, The UNIX File System. **cat**: Displaying and Creating Files,**cp**: Copying a File, **rm**: Deleting Files, **mv**: Renaming Files, **more** :Paging output,		
6		The **lp** subsystem: Printing a File, file: Knowing the File types, **wc**: Counting the Lines,words and Characters, **od**: Displaying Data in Octal, The spell and ispell,**cmp**: Comparing two Files, **comm**: What is Common?, **diff**: Converting one file to another, **dos2unix** and **unix2dos**:Converting between DOS and UNIX, Comparing Files, **gzip**, **gunzip**, **zip** and **unzip** commands.		
7	UNIT #2:	**ls –l**: Listing File Attributes, The –d Option: Listing Directory Attributes, Listing mode Number, Listing		

		inode Number,		
8	**BASIC FILE ATTRIBUTES, THE vi EDITOR** T1:page #:97-07, 208-221,110-130,439-442	Listing Hidden Files, Time Associated with a file, Listing Time stamps, File ownership, File Permissions,	**11.5%**	**23%**
9		**chmod**: Changing the File Permissions, Changing the File ownership		
10		**vi** Basics, Input Mode –Entering and Replacing Text, Saving the Text and Quitting –The ex mode.		
11		Navigation, Editing Text, Undoing Last Editing Instructions (u and U)		
12		Repeating the Last Command (.), Searching for a Pattern (/ and?), Substitution-search and Replace (: s), Customizing **vi**		
13	**UNIT #3:** **THE SHELL, THE PROCESS** T1:page #: 133-156, 159-175	The shell's Interpretive Cycle, Pattern Matching-The wild cards, Escaping and Quoting	**13.5%**	**36.5%**
14		Redirection: The Three Standard Files /dev/null and /dev/tty; Two Special Files, Pipes		
15		**tee**: Creating a tee, Command Substitution, Shell Variables		
16		Process Basics, **ps**: Process Status, System Processes (-e or –a), Mechanism of Process Creation, Internal and External Commands,		
17		Running Jobs in background, **nice**: Job Execution with Low Priority, Killing Process with Signals		
18		Job Control ,**at** & **batch**: Execute Later,		
19		**cron**: Running jobs Periodically, **time**: Timing Process		
20	**UNIT #4:** **MORE FILE ATTRIBUTES,SIMPLE FILTERS** T1:page #:224-238, 240-250 R1:202-236	File systems and inodes	**13.5%**	**50%**
21		Hard Links, Symbolic Links and ln, The Directory, **umask**: Default File and Directory Permissions, Modification and Access Times **find**: Locating files		
22		The Sample Data base, **pr**: Paginating the files,		
23		**head**: Displaying the Beginning of a file,		
24		**tail**: Displaying the End of a file, **cut**: Slitting a File Vertically.		
25		**paste**: Pasting the files, **sort**: Ordering a file,		
26	**UNIT #5:** **FILTERS USING REGULAR EXPRESSIONS** T1:page #:224-238, 240-250 R1:202-236	**uniq**: Locate repeated and non-repeated lines.	**11.5%**	**61.5%**
27		**tr**: Translating the characters		
28		An example: Displaying a word count list		
29		**grep**: Searching for a Pattern,		
30		Basic Regular Expressions(BRE)-An Introduction,		
31		Extended Regular Expressions (ERE) and **egrep** **sed**:the stream editor,Line addressing,Using multiple instruction(-e and –f),Writing selected lines to a file(w),Text editing.		

32	**UNIT #6:** **ESSENTIAL SHELL PROGRAMMING** T1:page #:178-186,264-292, 447-448,458-462	**read** and Read-only commands, Using Command Line Arguments, **exit** and exit status of command	**11.5%**	**73%**
33		The Logical operators && and ‖ conditional Execution, The **if** Conditional, Using **test** and [] to evaluate Expressions.		
34		The **case** Conditional, **expr**: Computation and String Handling, $0: Calling a script by different names. **while**: Looping, **for**: Looping with a List		
35		**set** and **shift**: Manipulating the Positional Parameters. The here Document (<<), **trap** : Interrupting a program, Debugging shell scripts with set –x,		
36		**export**: Exporting shell variables, eval: Evaluating twice, The exec statement.		
37		Handling of Positional Parameters, Development of simple shell scripts to demonstrate the integer and real arithmetic operations		
38		The use of Branching and Looping constructs in the shell, Handling of Signals using the trap etc		
39	**UNIT #7:** **awk** T1:page #:385-399 R2:625-656	awk program line and script structure,	**13.5%**	**86.5%**
40		awk's operational mechanism, records and fields, special variables $0, $1, $2 etc.		
41		Patterns, the begin and end, built in variable		
42		built in function, length, spilt, get line, print.		
43		Printf, sprintf, index, system, substr etc, control structures,		
44		, operators in awk.		
45		Associative arrays, writing simple awk scripts, running awk scripts from the shell		
46	**UNIT#8:** **perl** T1:page #:402-407,408-426 R2:659-706	perl preliminaries, structure of the perl scripts, running perl scripts, perl data operators.	**13.5%**	**100%**
47		The chop and chomp functions: removing the last character, variables and operators, string handling functions,		
48		specifying file names in the command line, current line number ($).		
49		The range operator (..), lists and arrays, for each: looping through a list, spilt: splitting into a list or array join: joining a list,dec2bin.pl: converting a decimal number to binary		
50		grep: Searching an array for a pattern, Associative arrays (Hashes), and Regular expressions.		
51		Substitution, the match and substitute operation,		
52		file handling, file tests, subroutines.		

Literature:

Book Type	Code	Title & Author	Publication Info		
			Edition	Publisher	year
Text Books	T1	Sumitabha Das: UNIX concepts and Applications (Chapters 1.2, 2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19)	4th	Tata McGraw Hill	2006
Reference Books	R1	Behrouz A. Forouzan and Richard F. Gilberg, Unix and Shell Programming A Text book	--	Thomson	2005
	R2	Unix & Shell Programming, M.G. Venkateshmurthy	--	Pearson Education	2005