



C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Applications
SEMESTER:- IV
CODE :- 5CS04MLP1
NAME – LINUX PROGRAMMING (LP) (Major Elective –I)

Teaching and Evaluation Scheme

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
							Marks	Hours	Marks	Hours	Pr/Vis	TW	Pr	
5CS04MLP1	LINUX PROGRAMMING (LP)	4	0	2	6	5	30	1.5	70	3	10	--	40	150

Objectives:

- Linux is available for many different systems. Its adaptability is such that enterprising souls have persuaded it to run in one form or another on systems based on the Alpha, ARM, IBM Cell, Itanium, PA-RISC, PowerPC, SPARC, SuperH, and 68k CPUs as well as the various x86-class processors, in both 32- and 64-bit versions.

Prerequisites:

- Fundamentals knowledge of operating systems, programming skills.

Course Outline:

Sr. No.	Course content	No. of Hours
1	Introduction to UNIX, Linux, and GNU; Linux Programs, Text Editors, The C Compiler, Development System	3
2	Shell Programming	6
3	Linux File Structure, File Access, I/O Library, Formatted Input and Output, File and Directory Maintenance, Scanning Directories, Errors, The /proc, fcntl, mmap	5
4	Linux Environment; program arguments, environment variables, time, data, temporary files, user & host information, logging, resources and limits	4
5	Terminals; terminals structure, terminal output, detecting keystrokes	4
6	Managing text-based screens with curses	4
7	Data management	4
8	Development tools	5
9	Process structure, New processes	3
10	Inter-process Communication: Pipes	4
11	Sockets	6
Total		48



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PRACTICAL LIST:

1	Simple Hello, College program. Experiment on use of static libraries
2	Experiment on redirecting output, redirecting input, pipes, interactive programs, creating a scripts
3	Experiments on variables, conditions, program control, lists, functions; commands.
4	Experiments using commands including mount, cd, cp, write, read, open, close, umask, lseek, fstat, stat, lstat, dup, dup2
5	Experiments using commands including fopen, fclose, fread, fwrite, fflush, fseek, string functions, print functions, input functions
6	Experiments using /proc, fcntl, mmap
7	Experiments using getopt, getopt_long
8	Experiments using environment variables; getenv, putenv, environ, time, date
9	Menu Routine Program using C, Output redirection,
10	Experiments on window structure, generalized functions, moving & updating a window, Managing multiple window.
11	Experiments on Memory allocation, available memory, abusing memory, null pointer and freeing memory
12	Experiments on Locking the files; create, cooperative, locking regions, competing locks.

Learning Outcomes:

1. After completion of this course, students benefitted to working with Operating Systems and its functionalities.

Teaching & Learning Methodology:

1. Using Whiteboard & Multimedia or OHP

Books Recommended:

1. Beginning Linux Programming, 4th Edition, Neil Matthew and Richard Stones, Wrox Publication, 2012.