LINUX INTERNALS LABORATORY

VI Semester: IT

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AIT105	Core	-	-	3	2	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 36				Total Classes: 36		

OBJECTIVES:

The course should enable the students to:

I. Familiar with the Linux command-line environment.
II. Understand system administration processes by providing a hands-on experience.
III. Understand Process management and inter-process communications techniques.

LIST OF EXPERIMENTS

Week-1	**BASIC COMMANDS I**

Study and Practice on various commands like man, passwd, tty, script, clear, date, cal, cp, mv, ln, rm, unlink, mkdir, rmdir, du, df, mount, umount, find, unmask, ulimit, ps, who, w.

Week-2	**BASIC COMMANDS II**

Study and Practice on various commands like cat, tail, head , sort, nl, uniq, grep, egrep,fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, tar, cpio.

Week-3	**SHELL PROGRAMMING I**

a) Write a Shell Program to print all .txt files and .c files.
b) Write a Shell program to move a set of files to a specified directory.
c) Write a Shell program to display all the users who are currently logged in after a specified time.
d) Write a Shell Program to wish the user based on the login time.

Week-4	**SHELL PROGRAMMING II**

a) Write a Shell program to pass a message to a group of members, individual member and all.
b) Write a Shell program to count the number of words in a file.
c) Write a Shell program to calculate the factorial of a given number.
d) Write a Shell program to generate Fibonacci series.

Week-5	**SIMULATING COMMANDS I**

a) Simulate cat command b) Simulate cp command

Week-6	**SIMULATING COMMANDS II**

a) Simulate tail command b) Simulate head command

Week-7	**SIMULATING COMMANDS III**

a) Simulate mv command b) Simulate nl command

Week-8	**SIGNAL HANDLING**
Write a program to handle the signals like SIGINT, SIGDFL, SIGIGN	
Week-9	**INTERPROCESS COMMUNICATIONS I**
Implement the following IPC forms a) FIFO b) PIPE	
Week-10	**MESSAGE QUEUES**
1. Write a C program (sender.c) to create a message queue with read and write permissions to write 3 messages to it with different priority numbers. 2. Write a C program (receiver.c) that receives the messages (from the above message queue as specified and displays them.	
Week-11	**SHARED MEMORY**
Implement shared memory form of IPC.	
Week-12	**SOCKET PROGRAMMING**
1. Write client and server programs (using c) for interaction between server and client processes using TCP Elementary functions. 2. Write client and server programs (using c) for interaction between server and client processes using UDP Elementary functions.	
Reference Books:	
1. Sumitabha Das, ―Your Unix The Ultimate Guide‖, Tata McGraw-Hill, New Delhi, India, 2007. 2. B. A. Forouzan and R. F. Gilberg, ―Unix and Shell Programming‖, Cengage Learning. 3. Robert Love, ―Linux System Programming‖, O'Reilly, SPD. 4. Stephen G. Kochan, Patrick Wood, ―Unix Shell Programming‖, 3rd Edition, Sams publications. 5. T. Chan, ―Unix System Programming using C++‖, Prentice Hall India, 1999.	
Web References:	
1. http://spoken-tutorial.org/tutorial search/?search_foss=Linux&search_language=English 2. https://www.redhat.com/en/files/resources/en-rhel-whats-new-in-rhel-712030417.pdf 3. http:// www.tutorialspoint.com/unix/ 4. http://cse09-iiith.virtual-labs.ac.in/	
Course Home Page:	
SOFTWARE AND HARDWARE REQUIREMENTS FOR A BATCH OF 36 STUDENTS: **HARDWARE:** Desktop Computer Systems: 36 nos **SOFTWARE:** System Software: Linux Operating System	