

# Bhoj Reddy Engineering College for Women: Hyderabad

## Department of Information Technology

Lesson plan of faculty member for the academic year 2016–17

Class: III B Tech

Branch-Section: IT-B

Semester: I

Subject: Linux Programming

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
<b>UNIT – I: Linux Utilities</b>		
1	File handling utilities	14 June 2016
2	Security by file permissions, Process utilities, filters	15 June 2016
3	Disk utilities, Networking commands	16 June 2016
4	Text processing utilities and Backup utilities	18 June 2016
5	Tutorial (G3,G2,G1) - Text processing utilities and Backup utilities	16, 17, 18 June 2016
6	sed – scripts, operation, addresses, commands, applications	21 June 2016
7	awk – execution, fields and records, scripts, operation	22 June 2016
8	Awk -patterns, actions, associative arrays	23 June 2016
9	strings and mathematical functions, system commands in awk	25 June 2016
10	Tutorial (G3, G2, G1) - Awk revision with its applications	23, 24, 25 June 2016
11	Shell Programming introduction, shell responsibilities	28 June 2016
12	Pipes and input Redirection, output redirection	29 June 2016
13	here documents, running a shell script	30 June 2016
14	the shell as a programming language, shell meta characters,	2 July 2016
15	Tutorial (G3, G2, G1)-file name substitution, shell variables, command substitution	30 June 2016, 1,2 July,
16	shell commands, the environment, quoting, test command, control structures	5 July 2016
17	arithmetic in shell , shell script examples	9 July 2016
18	Tutorial (G2, G1) - interrupt processing, functions, debugging shell scripts	8, 9 July 2016
<b>UNIT-II: Files and Directories</b>		
19	File Concept, File types, File System Structure	12 July 2016
20	File metadata-inodes, kernel support for files	13 July 2016
21	System calls for file I/O operations -open, create	14 July 2016
22	Read,write,close,seek,dup2,File status information-stat family	16 July 2016
23	Tutorial (G3,G2,G1) - file and record locking	14, 15, 16 July 2016
24	Revision	19 July 2016
25	Fcntl function,file permission -chmod,fchmod,file ownership -chown	20 July 2016
26	Lchown,fchown,links-soft links and hard links,Symlink, link, unlink	21 July 2016
27	Directories-creating,removing and changing directories-mkdir,rmdir,chdir	23 July 2016
28	Tutorial (G3, G2, G1) - Obtaining current working directory-getcwd,directory contents, scanning directories-opendir,readdir,closedir,rewinddir functions	21, 22, 23 July 2016
29	opendir, readdir, closedir, rewinddir functions	26 July 2016
<b>UNIT-III: Processes and Signals</b>		
30	Process concept, Layout of a C program image in main memory.	27 July 2016
31	Process Environment-environment list, environment variables, getenv,setenv	28 July 2016
32	Kernel support for process, process identification.	30 July 2016
33	Tutorial (G3, G2, G1) - Process control - process creation, replacing a process image, waiting for a process, process termination	28, 29, 30 July 2016
34	zombie process, orphan process	2 August 2016
35	System call interface for process management-fork, vfork, exit, wait, waitpid, exec family	3 August 2016
36	Process Groups, Sessions and controlling terminal.	4 August 2016

37	Differences between threads and processes.	6 August 2016
38	Tutorial (G1, G2, G3) - Revision	6, 5, 4 August 2016
39	Signals– Introduction to signals	16 August 2016
40	Signal generation and handling	17 August 2016
41	Kernel support for signals	18 August 2016
42	Signal function, unreliable signals	20 August 2016
43	Tutorial (G1, G2, G3) - reliable signals, kill, raise , alarm, pause	20, 19, 18 August 2016
44	abort, sleep functions	23 August 2016
<b>UNIT-IV: Interprocess Communication, Message Queues, and Semaphores</b>		
45	Introduction to IPC	24 August 2016
46	IPC between processes on a single computer system	27 August 2016
47	Tutorial (G1, G2) - IPC between different processes	27, 26 August 2016
48	Pipes creation IPC between unrelated processes using FIFO	30 August 2016
49	difference between pipes and fifos	31 August 2016
50	popen and pclose library functions.	1 September 2016
51	pipes and fifos	3 September 2016
52	Tutorial (G1, G2, G3) - pipes and fifos	3, 2, 1 September 2016
53	Message Queues	6 September 2016
54	Kernel support for messages	7 September 2016
55	api's for message queues.	8 September 2016
56	Client/ server example	10 September 2016
57	Tutorial (G1, G2, G3) - Client/ server example	10, 9, 8 September 2016
58	Kernel support for semaphores	13 September 2016
59	api's for semaphores	14 September 2016
60	api's for semaphores	15 September 2016
61	Client/ server example	17 September 2016
62	Tutorial (G1, G2, G3) - Revision	17, 16, 15 September 2016
<b>UNIT-V: Shared Memory and Sockets</b>		
63	Shared memory -kernel support for shared memory	20 September 2016
64	APIs for shared memory	21 September 2016
65	Sockets-introduction	22 September 2016
66	introduction to berkley sockets	24 September 2016
67	Tutorial (G1, G2, G3) – Revision of previous topics	24, 23, 22 September 2016
68	IPC over a network	27 September 2016
69	Client – server Model	28 September 2016
70	Socket address structures(Unix domain and Internet domain)	29 September 2016
71	Socket system calls for connection oriented protocol	1 October 2016
72	Tutorial (G1, G3) - Revision of previous topics	1 October, 29 September 2016
73	Socket system calls for connection less protocol	4 October 2016
74	Client/server programs-single server- client connection	27 October 2016
75	Multiple simultaneous clients	29 October 2016
76	Tutorial (G1, G2, G3) – Test	29, 28, 27 October 2016
77	Socket Options-setsockopt and fcntl system calls	1 November 2016
78	Comparison of IPC mechanisms	2 November 2016
79	Revision	3 November 2016
80	Tutorial (G3) – Test	3 November 2016

**Text books:**

1. Unix System Programming using C++, T.Chan, PHI
2. Unix Concepts and Applications, 4<sup>th</sup> edition, Sumithab Das, TMH
3. Unix Network Programmin ,W.R.Stevens,PHI

Name and signature of the faculty: Minhaj Begum

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Name and signature of Head of the Department: G. Srinivasa Rao

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