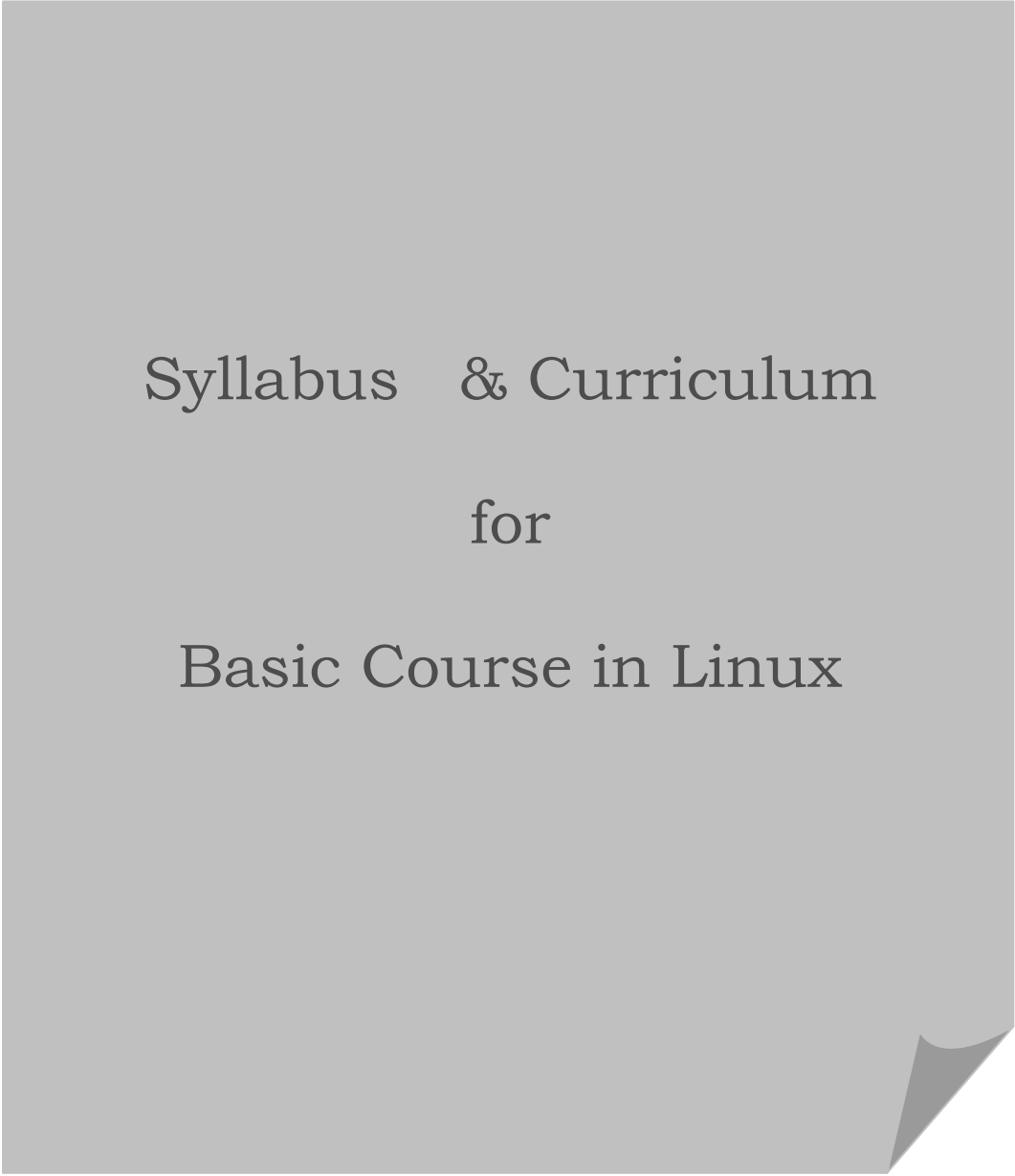





Basic Course In Linux

Prepared by DOEACC Centre, Calicut



Syllabus & Curriculum
for
Basic Course in Linux

1. General Description

Linux is a full-blown operating system that is a free clone of the UNIX operating system. When we start the computer with Linux, it takes over the operation of the PC and manages the resources of the computer like processor, memory, devices, file systems etc. This course is a practical introduction to Linux beginners with a special emphasis on the most useful aspects of the operating system.

2. General Eligibility

While extensive computer experience is not required to attend the class, it is recommended to have a basic understanding of Computer

Prerequisite: A willingness to learn and use command line applications and a commitment to further practice.

3. Hardware & Software required for Teaching

Hardware: The latest version (5) of Fedora Core recommends that a 400MHz Pentium II is the minimum for a GUI installation.

Software: UNIX/Linux OS.

4. Course objectives and content

A participant who successfully completes the course will be able to understand the basics of Linux-based operating system, and will be able to use the Linux OS

5. Suggested reference material

a. Basic reference material:

Online manual pages

b. Recommended Web sites

1. www.lowfatlinux.com
2. www.tldp.org
3. www.linux-tutorial.info

6. Examination /Evaluation scheme

The evaluation will be done based on one theory Examination of 2 hour and practical examination of 3-hour duration.

- a. Theory Examination: The examination will be of 2 hour duration and will contain 100 objective type questions with maximum marks of 100.
- b. The questions will be in proportion to the weightage of the modules described in this curriculum.
- c. Practical Examination: One Practical examination of 3 hour duration will be conducted on the modules described in the curriculum. The maximum marks will be 100.

7. Suggested duration for theory, tutorials, case study & practical sessions

Sl no	Modules	Duration in hours		Weightage of modules
		Theory	Lab	
1	Overview of Linux	10	5	5
2	Linux file system	10	10	15
3	The Shell	10	10	15
4	Users and file permissions	10	10	10
5	The vi editor	10	10	5
6	X windows	10	10	15
7	Filter commands	10	10	15
8	Processes	10	10	10
9	Shell scripting	10	10	10
10	Total	90	85	100

Detailed Syllabus

Contents

Module 1: Overview of Linux

Module 2: The Linux Filesystem

Module 3: The Shell

Module 4: Users and File permissions

Module 5: The vi editor

Module 6: X window system

Module 7: Filter commands

Module 8: Processes

Module 9: Shell scripting

Module 1: Overview of Linux

- 1 Knowing Your Machine**
 - a. What is computer
 - b. Different hardware parts
 - c. Software (system/application)
- 2 Operating System**
 - a. System software
 - b. Main functions and roles
 - c. Introducing Linux as an OS
- 3 History of Linux**
 - a. UNIX
 - b. Bell labs
 - c. GNU and LINUX
- 4 Structure and features of Linux**
 - a. Kernel and Shell
 - b. Multi-user system
 - c. Multitasking system
- 5 Working with a Linux machine**
 - a. Linux booting process
 - b. Two user interfaces(GUI and CUI)
 - c. Account and password
 - d. Commands – syntax
 - e. Internal and external commands
 - f. Example commands – date, clear, echo etc.
 - g. Linux Graphical Environments
 - h. X window system
 - i. Desktop Environment – GNOME , KDE

Module 2: The Linux Filesystem

1 Hard disk

- a. Hard disk
- b. Partitioning
- c. Formatting
- d. Creating file systems

2 Files

- a. Files
- b. Filenames
- c. File types and directories

3 Directory Hierarchy

- a. Directory Hierarchy
- b. Single rooted inverted tree structure

4 Commands for managing Files and directories

- a. Listing and changing directories
- b. Home directory
- c. Pathnames
- d. Creating files and directories
- e. Copying files and directories
- f. Renaming files
- g. Removing files and directories
- h. Viewing a file (page wise)
- i. Locating files

Module 3: The Shell

1 Types of shell

- a. sh command
- b. bash
- c. csh
- d. /etc/shells file
- e. Shell prompts
- f. Short cut keys and command history

2 Wild – card charecters

- a. The * and ?
- b. Pair of brackets
- c. Character class
- d. Quoting

3 Redirection and pipes

- a. Standard input
- b. Standard output
- c. Standard error
- d. Pipes
- e. Tee command

4 Shell variables

- a. Local variables
- b. Environment variables – PATH, HOME, PS1 etc.
- c. Aliases

5 Command line expansion

- a. Variable and string
- b. Command output
- c. Arithmetic expansion

Module 4: Users and File permissions

1 Three categories of users

- a. Owner or user
- b. Group
- c. Others

2 Two types of accounts

- a. Normal accounts
- b. System accounts
- c. Root user

3 User configuration files

- a. `/etc/passwd`
- b. `/etc/group`
- c. `/etc/shadow`
- d. User management commands – `useradd` , `userdel` etc.

4 File permissions

- a. Output of `ls -l` command
- b. Read
- c. Write
- d. Execute
- e. `chmod` command

5 File ownership

- a. Owner and group owner
- b. `chown` command

Module 5: The vi Editor

- 1 Three modes of vi**
 - a. Command
 - b. Input
 - c. ex
- 2 Saving text and quitting vi**
 - a. Saving
 - b. Aborting
- 3 Command mode**
 - a. Repeat factor
 - b. Deletion
 - c. Navigation
 - d. Pattern search
 - e. Repeating last command
 - f. Undo operation
 - g. d, c, y, ! operators
- 4 ex mod**
 - a. Handling multiple files
 - b. Executing shell commands
- 5 advanced features**
 - a. Named buffers
 - b. Numbered buffers
 - c. Marking text
 - d. The set command
 - e. Mapping keys
 - f. .exrc file and EXINIT variable

Module 6: X Windows

- 1 Layered structure of X**
 - a. Window manager
 - b. Desktop environment
 - c. User configuration
 - d. startx command
- 2 Window managers**
 - a. GNOME
 - b. KDE
 - c. Purpose of window manager
- 3 The KDE desktop**
 - a. KDE panel
 - b. Desktop icons
 - c. Konqueror file manager
 - d. Managing windows
 - e. The KDE control center
- 4 The GNOME desktop**
 - a. The GNOME panel
 - b. The metacity window manager
 - c. The nautilus file manager
 - d. The GNOME control center
- 5 Configuring X**
 - a. /etc/X11/Xorg.conf file
 - b. Tuning Xorg.conf
 - c. Choosing a window manager

Module 7: Filter commands

1 Simple filters

- a. cat, wc etc
- b. head, tail
- c. cut, paste
- d. sort, uniq
- e. tr

2 Regular expressions

- a. Regular expression character sub-set
- b. grep command
- c. Using regular expressions with grep
- d. egrep and fgrep

3 Advanced filters - sed

- a. Syntax for sed
- b. Line addressing
- c. Context addressing
- d. Inserting/deleting text/lines
- e. Substitution
- f. The f option

4 Report writing using awk

- a. Filtering in awk
- b. Lines into fields
- c. Using printf
- d. Using operators
- e. Numbers and variables
- f. BEGIN and END sections
- g. Built-in variables, arrays
- h. Control flow, functions

Module 8: Processes

- 1 Basic process concepts**
 - a. sh process
 - b. Process ancestry
 - c. Process states
 - d. ps command
- 2 Sending signals to processes**
 - a. Signal numbers
 - b. kill command
 - c. Using ctrl-c
- 3 managing jobs in the background**
 - a. using &
 - b. nohup
 - c. The \$!
 - d. Using ctrl-z
 - e. bg,fg commands
 - f. Jobs command
 - g. nice
- 4 process scheduling**
 - a. at, atq, atrm
 - b. using cron

Module 9: Shell scripting

1 writing shell scripts

- a. script names and making a script executable
- b. read command
- c. using positional parameters
- d. exit status and \$?
- e. Using if conditional statement
- f. Comparisons using test
- g. The case statement
- h. Using expr
- i. While loop and until
- j. The for loop
- k. Using functions



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