

Punjab University Gujranwala Campus

Course Outline for Certification Course

Title: Linux Administration

Objective:

This course is intended for users who want to learn more about the inner workings of Linux and how the various pieces of the Operating System fit together. This course will guide you step-by-step in creating your own custom build Linux system from scratch, using nothing but the sources of software that are needed.

Another purpose of this course is to give an overview of the networking capabilities of the Linux operating system. New Linux users, particularly those coming from a Windows environment, are often unaware of the networking possibilities of Linux. This course aims to show a general picture of such possibilities with a brief description of each one and pointers for further information.

The information has been gathered from many sources: HOWTOs, faqs, projects' web pages and my own hands-on experience.

Those are just a few out of many reasons why people want to build their own Linux system. If you're one of those, this course is meant for you.

Lecture	Topics
1	History of Linux, Comparison between Linux & Windows, System requirements, Mount Points,
2	Linux Installation
3	File System Structure: DOS to Linux Cheat Sheet, Linux File Systems, What are Inodes, Data Storage Layout in ext2. File Systems Hierarchy Standards: File system Structure, The Directory Tree Structure
4	Basic Commands: Logging In, Logging Out, Shutting Down, Changing your Password, Listing Files (ls), Pico, more, less System manual pages, System info pages, Directories [cd], Manipulating directories [mkdir], Directories [pwd], Directories [rm], Directories [rmdir],
5	Basic Commands: Relative vs. absolute pathnames, Directories [cp], Basics of Wildcards, clear, Using cat command to create files, Using Redirection, Joining Files and Redirecting Output, Appending Standard Output, Redirecting Standard Input, touch command,
6	Basic Commands: Determining file type, Viewing the access statistics of a file or directory, which command, cmp, grep, head, tail, locate, Searching for files using find command
7	Permissions: Permissions, File Permission Types, Directory Permission Types, Changing Permissions (chmod), Level Options, Symbols used between Levels & Permissions, Adding rights to a file, Removing rights from a file, Changing Permissions with Numbers Default Discretionary Access Control (UMASK) Changing user OR group ownership chown & chgrp commands
8	Managing File Links: Managing Links, Hard links, Removing a link, Symbolic links. Linux Devices: Device Basics, Hard and Floppy Drives, Serial Devices, CD and Tape Drives, Device Commands, Adding A Device Linux Partitioning using Fdisk Introducing Linux fdisk, Starting fdisk, Displaying Table, Toggling Display Units, Creating Partitions, Listing Partition Types, Changing Partition ID, Toggling Boot Flag, Deleting Partitions, Verifying Table, Quitting Without Saving, Writing Changes to Disk
9	User Administration: User Accounts, Standard Users, System Accounts, Default Users, Default Groups, Privileges of a root user,

	Key Configuration File /etc/passwd File, Why use Shadow Password ?, /etc/shadow File, Adding Users, /etc/login.defs Managing Users with Command Line Tools Creating a new user account, Default Settings, Overriding System Default, Private Group, Assigning user an additional group, To Find Out which groups user belong to,
10	User Administration Creating a new group, Modifying an existing user account, Changing a password, Changing the shell, Changing the home directory, Changing a default group, Changing an account expiration date, Changing finger information, Modifying an existing group, Deleting a user account, Disabling a user account, Creating default user settings
11	System Startup & Shutdown. System Startup and Initialization, kernel Boot Messages Chkconfig Utility
12 Process Management	
13	RPM Management What Is Package Management? Red Hat Package Manager (RPM) The tasks you can perform with RPM What Is a Package? Binary Package Source Package Syntax of RPM Architecture for the Package noarch string Some common Architecture strings Where To find Packages Working with rpm How to examine the information about a package? To see a listing of the files in the package Querying Packages with RPM
14	RPM Management Installing Packages with RPM Steps RPM goes through during installation. Install options used with RPM Uninstalling Packages with RPM Updating Packages with RPM Verifying Packages with RPM Verification Failure Codes
15	Backup Archiving and compressing files Using tar. gzip gunzip Putting them together Unpack this Archive Scheduling Jobs Using cron
16	Linux Networking Introduction to UNIX Networking Setting Up a Network Set Up Network Interface Network Configuration in RH Common Network Conf. Files The xinetd Internet Service Daemon
17	Server Configuration Set up FTP Service Set up Telnet Service Setup SSH Server
18	Samba as a PDC
19	Samba as a PDC

20	Samba as a member server of an existing domain
21	The Quota Service
22	Squid (Proxy Server)
23	Set Up Mail Service (Sendmail)
24	Set Up NFS Server