COURSE OUTLINE

Day 1

Linux Desktop Productivity

Objective is to get candidates comfortable with the Linux desktop environment.

Key topics:

- o Understanding the X Windows environment & its components

- o GNOME: Features, Control Center, Panel

- o Sawfish - Window manager

- o KDE: Features, Control Panel, Kpackage

- o Overview of office applications

Linux Commands and Text editing

Objective is to learn the key Linux commands and their options. Text editing, the UNIX way, is also covered.

Key topics:

- o Generic command syntax

- o Important commands and their use

- o Text editing using vi editor

Using the Shell

Power use of the Linux shell is a key objective towards becoming an effective Linux system administrator.

Key topics:

- o   What is a shell?
- o   Everyday shell use
- o   Shell features: Piping & Redirection
- o   Environment variables
- o   PATH environment variable

Writing Shell Scripts

Objective is to learn the basic constructs of writing Linux shell scripts, and develop some useful scripts during the lab.

Key topics:
- o   Reasons for scripting
- o   Writing a simple shell script
- o   Positional parameters
- o   Exit status and test conditions
- o   Functions and Loops

Day 2

Networking Fundamentals

Objective is to review fundamentals of TCP/IP and learn the utilities and key files on Linux to configure and monitor a system on a LAN

Key topics:
- o   Understanding the different protocols that are part of the TCP/IP protocol suite such as TCP, IP, UDP, and ICMP

- o Learning the fundamental, configuration variables for TCP/IP networks such as IP addresses, IP subnets, subnet masks, etc.

- o Setting up, configuring, and connecting a Linux computer to a TCP/IP network

Administration: Fundamentals Installation and Configuration

This is a core system administration module, focusing on Linux installation and broad aspects of its configuration

Key topics:
- o Understanding what a Linux distribution is and determining which one is best for you

- o Learning how to use basic file management commands

- o Understanding basic administration concepts such as users and groups

- o Changing file ownership and permissions

- o Configuring your system for basic usage

- o Installing and working with rpm packages

Day 3

Linux Development Environment

This module prepares attendees to support a group of developers, as well as compile and install from source code.

Key topics:
- o Understanding the development tools available on a Linux system

- o Writing shell scripts and using scripting languages

- o Understanding, installing, and upgrading shared libraries

- o Compiling source code using Make

Kernel and Boot Loaders

This module gives an in-depth look into the Linux Kernel compilation process. An overview of the Linux boot loaders is also given.

Key topics:

- o Understanding what the actual Linux kernel is

- o Understanding what the Linux kernel version number means

- o Configuring and compiling a custom kernel

- o Patching the kernel

- o Compiling and loading Linux kernel modules

- o Boot loaders: GRUB and LILO

Day 4

Administration: Automation, Startup, Maintenance

Another core system administration module that covers the management of a production Linux system. Includes the networking aspects of the X windows system

Key Topics:

- o Controlling processes by adjusting their execution priority, terminating them, and sending them other signals

- o Determining which daemons are running and what their purpose is

- o Administering the X Windowing System including setting up the X Server, displaying remote clients on your display, and configuring access control for your display

- o Automating processes with cron and at

- o Strategies and guidelines for data backup

Network Services

This module provides an overview of the core network services commonly run on a Linux Server

Key topics:

- o Setting up a basic Apache HTTP Server

- o Understanding the differences between the popular ftp servers and be able to set them up

- o Setting up Samba clients and servers

- o Setting up a basic DNS server

- o Understanding differences between different mail servers and be able to do basic setup

- o Introduction to DHCP

Day 5

Security

This module provides an overview of applied Linux security.

Key topics:

- o Setting up user authentication and making the system more secure using PAM and shadow passwords

- o Finding out which TCP/IP ports are open, which services are responding to requests on those ports, and detecting vulnerabilities

- o Using TCP/IP wrappers and firewall software to filter packets

- o Choosing versions of network daemons and clients that are more secure

- o Keeping up to date on the latest security vulnerabilities

Test

The test at the end of the class will have two parts: Objective type questions and a Lab exercise. Candidates will be tested on their grasp of the various concepts covered during the class.